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ABSTRACT

This paper is based on a transactional viewpoint (involving writer, reader, and text) in which the text is no longer external but is constructed and reconstructed by the reader during reading. Using a database developed for a previous study (Goodman and Goodman, 1978), this research examined pronoun usage in three basal texts by evaluating the miscue patterns of 24 second graders, 32 fourth graders, and 32 sixth graders. These students represented eight populations made up of four English dialect groups from Tennessee, Maine, Mississippi, and Hawaii, and four bilingual groups from Arizona (Navajo), Michigan (Arab), Texas (Spanish), and Hawaii (Samoan). Analysis of readers' miscue patterns indicated that they established pronoun referents in the personal texts they created as they read. Results showed that pronouns were read without miscues over 90% of the time. Key findings included the following: (1) many text pronouns were read with few or no miscues, though others revealed identical substitutions by several subjects, indicating their shift to a different referent; (2) pronouns were substituted for other text words in rough proportion to their occurrence in the text; (3) readers tended to substitute pronouns with other pronouns from the same grammatical case, thus maintaining syntactic function and anticipating where pronouns would occur in noun positions; (4) non-pronoun substitutions occurred in few categories, indicating that readers expected pronouns in certain text positions; (5) determiners were frequently interchanged with possessives, indicating the maintenance and possible intensification of cohesive relationships; (6) miscue patterns involving conjunctions and pronouns indicated the reader's manipulation of the surface structure using different options than the author. (JD)

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TEXT FEATURES AS THEY RELATE TO MISCUES: PRONOUNS

Kenneth S. Goodman
Suzanne Gespass
University of Arizona

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Arizona Center for Research and Development
College of Education
University of Arizona

Co-Directors:
Yetta M. Goodman
Kenneth S. Goodman
402 Education, Bldg. 69
University of Arizona
Tucson, Arizona 85721

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PROLOGUE

Research reports do not usually have prologues. But this one needs a prologue. It started out as a simple expansion of one aspect of another study. That study, funded under a small grant from NIE, had as its central purpose the reworking of a relatively large miscue data base in which substantial number of readers read the same texts. We coded all miscues (unexpected oral reading responses) of all readers in addition to the first 50 non-dialect miscues coded in a study completed in 1978. (Goodman and Goodman, 1978) Past miscue studies produced qualitative-quantitative profiles for readers an;d groups of readers. To use the same data to look at texts, we used a more limited number of variables than the data base contained so that we could assign hierarchical scores to miscue patterns. With those scores we could examine the texts in the light of the combined quality and quantity of miscues generated at each text point and over each text feature.

So the small funded study gave us a new data base for studying three texts from the vantage point of data on how readers miscued on them. In that study we also made some beginnings at several types of text analysis.The final report(Goodman and Gespass, 1982) shows our explorations of propositional analysis, macrostructure analysis, syntactic analysis, as well as a general discussion of which sentences generated the highest and lowest scores and what text features contributed to those scores.

Our original proposal did not call for us to analyse text cohesion but the data showed some very interesting patterns so we briefly explored two aspects of text cohesion, pronouns and determiners. It was our intention with this report to expand on the pronoun data. Another report will expand on the determiner data.

That seemed like a simple goal when we began. But two things have made the task a good deal more time-consuming than we had imagined it would be. One is that the data turned out to be much richer and more complex than we had first thought. The other is that the deeper we got into studying the pronoun miscue patterns the more important we realized pronoun phenomena are in helping to understand text cohesion and in resolving theoretical issues relating to text cohesion and text processing. Furthermore we realized that our data provides a kind of evidence of how readers assign reference in their construction of text which is not obtainable from other research.

So our simple elaboration on one aspect of another study has grown into a full-fledged study which we believe is of major significance in understanding the transactions between text and reader during reading.

A Transactional Point of View

There are three components to any language episode, speech act, or literacy event. These are speaker, listener and text in oral language and writer, reader, and text in written language. In both cases the language episode occurs in a situational and pragmatic context. One cannot usefully separate any of these from the others or from their contexts for study but each can provide a vantage point from which to study language. In the transactional view, which we take, reader and writer or speaker and listener engage in transactions through text. Similarly we can think of transactions between text and speaker or listener. We prefer Dewey's term, transaction, as interpreted by Louise Rosenblatt (1978) to the term that we and others have used, interaction, because transaction means that each is altered in the process. The text is no longer something external but in fact is constructed and reconstructed by the reader during reading. Readers in turn are changed during the transactions in terms of their schemata, the conceptual and affective systems whereby they organize experience. In the terms of Dewey and Piaget, knower and known are changed in the process of knowing.

This transactional viewpoint has had a guiding effect on our miscue research. We looked at reading from the vantage point of the reader and examined how readers comprehend texts by looking at the patterns of miscues (unexpected responses) produced in oral reading. Miscues show both reader and text in the process of changing.

This article reports an aspect of a series of studies in which we have used the same miscue data base to study reading comprehension from the vantage point of the text. We are looking at patterns of miscues produced by a number of readers that involve a particular aspect of the referential cohesion system, namely pronoun structures. In the earlier research we looked at the transactions from the perspective of the reader; in the present studies we look at them from the perspective of the text.

Since we regard reading as a constructive process, there are really not one but at least two texts which coexist during reading. The first is created by an author, perfected through a publishing process, and interpreted by us in the course of the research. The second is created by the reader during the reading, transformed through reader transactions with the first text. As we will later demonstrate, the true referent of the text pronoun structures is in the reader constructed text. The reader infers reference and coreference and builds these into the text so it will make sense. The published text is what the reader is transacting with. And we may describe its features including its referential system. But nothing in that text itself, nor any rule of its construction makes the specific reference of a pronoun explicit to readers in general or to a given reader. That must always be inferred by the reader.

The Study of Texts

Miscue research has, from its inception, concerned itself with whole natural texts. But such text based research has been the exception rather than the rule in reading research. Furthermore, when connected texts have been used in reading research they have tended to be specially contrived by the researcher in order to control the variables being studied. Developments in linguistics and psychology in recent years have led to a growing tendency to have research subjects read some kind of whole, coherent, meaningful text. However even these texts tend to be short and either expressly created for the purpose of the research or drastically modified to fit research design constraints. Later we'll discuss some studies which used such contrived texts. Since our research imposed no such constraints on the text it makes our data base particularly rich for the study of text phenomena. They occur naturally in the texts and our readers transact with them in the course of making sense of the texts.

The relationships between thought and language have always been recognized as important and interesting among scholars from a number of disciplines. A question of continuing importance is how thought is expressed through language. And a continuing concern of theoreticians and researchers is what the minimal unit of language is which is sufficient to the study of how language is used to express meaning.

Theoretical linguistics has been concerned in its current dynamic epoch with the sentence as the unit of analysis. In fact, a common definition of a language has been the set of sentences which the grammar of the language would generate. (Chomsky, 1957)

This preoccupation with the sentence was very productive because it led to a very sophisticated understanding of sentence structure and how sentences express meaning. Since grammar largely functions within sentences, a very productive generative-transformational grammar could be built with the sentence as the unit of analysis.

The problem is that the sentence is too small a unit to use in getting at the complex ways in which language works in human communication, thought and learning. A language is much more than the set of sentences its rules can generate.

Halliday and Hasan(1976, p.23) say that a text "can be thought of as the basic unit of meaning in language.It is to semantic structure what the sentence is to lexicogrammatical structure and the syllable is to phonological structure."

To deal with comprehension, it becomes increasingly important to define what a "text" is. The question becomes:"How do we know when a text is a text?" A text, simply speaking, is some aggregate of language which holds together in some way. But it is not length which makes a text a text. Rather, a text must make some sense, for the

people involved, as a complete unit within the context of the situation in which it occurs.

Stenning(1978) is interested in how specific features of language function which allow us to conjure up a context for information which is not linguistically explicit. Before setting out some guidelines for establishing a theory of text, he observes:

> ...not just any sequence of sentences will do as a text; there must be some continuity, some thread that runs though the text, some development of themes. The same people, objects, events, properties, or relations must recur to at least some extent. When they are lacking from the face of the sentences that make up the text, our effort after meaning will usually succeed in creating them.(Stenning, p.162)

Stenning observes that, when language users construct possible contexts for parts of texts that they encounter out of context, much of the context they construct is built from nonlinguistic information. For these reasons, Stenning argues that it is not useful to approach a theory of text in the same way as one might approach a theory of syntax. Unlike the problem of syntax where one can begin by identifying the series of words that make up the well-formed sentence, "the problem of text cannot be looked at by identifying characteristics of the sequences of sentences that make well-formed texts for the reason that once we build the context, the text is always appropriate to that context." Stennings position is one which has been foundational to miscue research: we must approach the problem of text from the point of view of "characterizing what we are doing in our effort after meaning."(p 163)

Cohesion and Reading

Language texts must have structures within them that relate the elements of the texts to each other and to coherent meanings. Those features of the text that can be identified as providing the semantic structure and holding the text together and which can be categorized across texts are the elements which make the text cohesive.

Cohesion, then, is important as a vehicle for the meaningful interpretation of a text. The nature of a text is that propositions are linked in a meaningful way and features that provide those linkings are the cohesive elements. Halliday and Hasan(1976) say that cohesion is the system of language that is text forming:

> It is the means whereby elements that are structurally unrelated to one another are linked together, through the dependence of one on the other for its interpretation. The resources that make up the cohesive potential are part of the total meaning potential of the language, having a kind

> of catalytic function in the sense that, without cohesion, the remainder of the semantic system cannot be effectively activated at all.(Halliday and Hasan, 1976 , pp27-28).

This statement makes clear why the study of cohesion is important to the study of reading. If reading is making sense of print, that is constructing meaning, then it seems that the study of those structures in the text which make the text cohesive and thus provide the vital webbing of the semantic system are very important in coming to understand comprehension.

Why Do Texts Contain Pronouns?

We've argued earlier that all pronouns require inferences by the reader to achieve meaning. The grammatical rules do not relate pronouns to their referents in any reliable sense. That would make it seem that texts could be made more comprehensible if they did not contain pronouns at all. Richek, in a study we'll discuss more fully later, concluded that children comprehend better when nouns are repeated than when pronouns are used.(Richek, 1977).

There must be some reason why speakers and writers use pronouns so profusely and pervasively. That reason must be more important than the apparent loss of explicitness that results from using pronouns.

There is, in language use, a kind of universal rule of economy. Simply stated, the rule is that, in connected discourse, once information or reference has been established, that is "given", it does not need to be reiterated. This rule is much more broadly applied in discourse than just pronoun use. Once an adjective is used to describe a noun, THE RED CAR, for example,further references to the noun do not usually include the adjective unless it is necessary to differentiate from some other car. There are other pro forms besides pronouns. Auxiliaries, particularly DO, may replace verbs in subsequent references:

CAN YOU CLIMB THE LADDER? YES, I CAN.

HE LIKES TO GO FISHING? HE DOES IT ALL THE TIME.

Prepositions may stand for adverbial phrases:

HE WALKED IN AND LOOKED AROUND.

There are many forms of elipsis that result from this rule of economy. When asked a question the usual form of response is to leave out of the statement all explicit information from the question:

WHAT COLOR IS YOUR SHIRT? BLUE.

Another form of elipsis is deletion of the subject in following clauses when it is the same as the prior one:
HE WENT UPSTAIRS AND WENT TO BED.

This kind of deletion creates a form of null anaphora. The absence of the subject for the clause implies that it's identical to the subject of the previous clause since that's the only condition that permits its deletion.

In oral language many things do not need to be stated since the situational context makes them explicit. Instead, the language uses pointing devices for indicating referents. Terms like THIS and THAT are such deictic, or pointing devices.

Hankamer and Sag (1976) see what we have called the rule of economy as a process of avoiding redundancy through anaphor. They express this in the terms of generative-transformational linguistics:

> Language provides us with two ways to avoid redundancy. Redundancy at the deep level can be eliminated by substituting a deep anaphor for the semantic unit that appears elsewhere in the discourse or in context; redundancy at the surface level can be eliminated by substituting a surface anaphor(generally null) for a surface segment that appears elsewhere in the linguistic structure (including wider discourse).(P425)

They conclude that linguistic competence cannot be represented in a sentence-generating grammar and that there must be a syntax of discourse. In order to describe deep anaphora there must be some means of accounting for the non-linguistic context as well as the linguistic one. "The only way, if we take the job seriously, is to assume a representation of the discourse SITUATION which includes not only the representation of the linguistic events, but some STAGE DIRECTIONS as well."(p426). This view makes questionable the results of studies which draw conclusions about text comprehension from subjects performance with short decontextualized texts.

Stenning has a related principle he calls anaphoric conservatism. This principle states that old elements in texts are not given new descriptions. The principle, however, is not absolute. "Anaphoric conservatism obviously can operate only to the extent of the speaker's knowledge and does operate only to the extent of his willingness to divulge information about identities."(1978, p 194)

Bartlett and Hirst(1982) also raise the question of why authors prefer pronouns when noun phrases could be repeated. They use Clark and Haviland's integration model(1977) based on the "given-new contract" to answer their question. They believe that pronouns signal that the information is already given(that is already known) and thus

they facilitate integration.

Pronouns exist in the language, then, as part of a pervasive tendency to avoid redundancy and to say as much as (but no more than) needs to be said. The system works because listeners and readers are able, usually, to make the inferences, assign appropriate references and coreferences where needed and build a meaningful text within an appropriate context.

The fact that the system works and that it is so pervasive demonstrates how little is explicit in language and how much depends on inference.

Pronouns

From a linguistic point of view pronouns, at least in English, perform grammatical functions; they may be marked for person, number, and gender. But they are actually a part of the semantic system; they make up a chain of relationship with the other parts of the semantic system. The specific reference of a particular pronoun can only be determined from the total semantic-pragmatic context. Halliday and Hasan argue that it is purely incidental that a pronoun referent is anaphoric(with a preceding referent) or cataphoric(with a following referent). This is clearly different from cohesive relations of substitution and elipsis which are recoverable from the text. In our example above we can reconstruct the full statement THE COLOR OF MY SHIRT IS BLUE from the text by reversing the deletion rules.

The relationship between syntax and semantics needs to be addressed in understanding the role of pronouns in a text and the readers' processing of them. If we say that there is a meaning potential in language which we call the semantics of a language then that meaning potential must be realized by the syntax or lexicon of the language which Halliday calls the lexico-grammar. Because pronouns convey semantic relationships, in understanding reading comprehension it is necessary to understand where readers must go to realize the meaning being represented.

Pronoun reference is not the simple matter of identification of explicit noun (often proper noun) antecedent that it is often considered. Stemming has concluded that anaphors are deictics, indicators that point linguistically to their referents much as a finger might in an oral conversation:

> Anaphors... are viewed as demonstratives that point to structures in the (reader's) model that has been constructed and incorporate those structures into the interpretation of the statements the anaphors appear in. They may point to single elements of the domain identified by their antecedents; they may point to sets of such elements or to sets of groupings of those elements with

other elements to which they have earlier been related; they may point to relations between groups of objects and incorporate the relation rather than the objects into the interpretation of their statement (anaphors of sense); or they may point to properties of objects and incorporate descriptions into their statements (where the antecedent is a tacit description or explicit predicate nominal).

When a phrase has an explicit linguistic antecedent, it will appear that the phrase, as an anaphor, is pointing to that antecedent and incorporating its linguistic structure into the anaphor's statement; yet for each such case, a counterpart is possible for which there is no explicit linguistic antecedent, and in these cases the phrase points to the relevant structure in the model rather than in some sentence. Since this is the case, we can always assume that even where there is an explicit linguistic antecedent, the phrase actually points to the structure in the model that that antecedent established rather than to the linguistic structure itself. By making this assumption we get a uniform account of the function of such phrases. It is in this sense that anaphors can be seen as repetitions of their antecedents. (Stenning, 1978, p. 196)

To relate this concept of reference to our own theory, the reader constructs a text using both antecedent and anaphor. The anaphor is coreferential with a structure in the reader's text which may have been assigned in response to an antecedent linguistic structure in the published text, if in fact such antecedent structure existed. If not, coreference will be assigned by the reader to some other structure in the text or context. Furthermore, as the miscues on pronoun structures will demonstrate, the reader may make anaphors coreferential with other linguistic structures even when there is an explicit antecedent. That's because all such assignments require inference.

Personal Reference

Halliday and Hasan separate demonstrative and personal reference. They call demonstrative reference the verbal form of pointing. The referent is identified in relation to the speaker. They distinguish circumstantial (adverbial) demonstratives like HERE, THERE, NOW, THEN from nominal demonstratives like THIS, THAT, THESE, THOSE.

In discussing personal reference Halliday and Hasan say:

Only the third person pronoun is inherently cohesive in that a third person form typically refers anaphorically to a preceding item in the text. First and second person

> forms do not normally refer to the text at all; their referents are defined by the speech roles of speaker and hearer, and hence they are normally interpreted exophorically, by reference to situation. (Halliday and Hasan, 1976, p.48)

There are two major ways that first and second person pronouns occur in written narrative. One is through use of first person narration. Indeed one of the three texts used in this study, S53, MY BROTHER IS A GENIUS, is told in first person by a character who is actually never named. Readers of first person narratives must create a set of referents for the first person pronouns within a schema which creates a narrator/reader transaction in which author takes on the fictional voice of the narrating character.

The second principal way that first and second person occur in written narrative is through direct quotation of oral dialogue. In representing oral dialogue the writer must use some devices for providing the reader with elements of the situation not explicit in the speech itself. Those include who is speaking to whom. Situational context is usually created by devices in the dialogue carrier as this sequence from one of the texts we studied, S51, FREDDIE MILLER, SCIENTIST, illustrates:

> "Elizabeth," he called. "I'm going to drop this light down to you through the transom. Catch it by the ruler and let me know when you can reach it."
>
> The next minute Elizabeth cried, "I have it, Freddie."

As this example shows, the dialogue carrier helps the reader create a situational context, but there are a variety of ways to establish who is talking to whom. So the referents for the first and second person pronouns are not in the text itself but in the oral language context for the dialogue which the reader creates using resources provided by the author. The readers' knowledge of how dialogue is represented in written language must be related to the readers' general knowledge of speech situations.

There are some other personal pronoun uses which Halliday and Hasan call institutional exophora. This sequence from another of our texts, S53, illustrates some of these uses:

> OUR teacher says if YOU know how to think and know enough words to express YOUR thoughts, there isn't anything YOU can't say or do.
>
> I don't know about that, but I know WE get a good education in OUR school. And THEY encourage special projects.

Several of the pronouns above, YOU, YOUR, THEY, are of this institutional variety. And several others, particularly the use of WE and OUR are exophoric in the sense that there is no referent in the text. Rather the reference is to the relationship of teacher and school to pupils which the reader must infer from a knowledge base about classes and schools.

Halliday and Hasan see personal reference, mostly in third person forms, as cumulatively anaphoric. All the pronoun references to a main character join in a cohesive chain:

> This phenomenon contributes very markedly to the internal cohesion of a text, since it creates a kind of network of lines of reference, each occurrence being linked to all its predecessors up to and including the initial reference. The number and density of such networks is one of the factors which gives to any text its particular flavor or texture. (P. 52)

Pronoun IT

Of all pronouns IT has the most complex references. In our three texts IT occurs in many varied uses. S53 starts,

"If IT bothers you to think of IT as babysitting then don't think of IT as babysitting."

Early in S51, Freddie's mother says:

"What queer experiment was IT this time?"

Halliday and Hasan comment:

> The word IT differs from all other personals in that it may refer not only to a particular person or object, some entity that is encoded linguistically as a participant -a noun or nominal expression- but any identifiable portion of text. (p52)

They break this up into two separate phenomena of extended reference and text reference. Extended reference is when IT refers to an identifiable process. An example from S53 is:

"Go ahead and cry! Cry all you want to. It won't disturb me."

The referent here is to the process or processes which are, "grammatically a clause or string of clauses, not just a single nominal"(p.52).

Text reference is when the pronoun refers to some portion of the text which has been changed into a fact. In S53 again this sequence occurs:

> "Yes, Miss, it's very important," I said to the lady on the telephone. "An important project depends on it."

The IT here is the need to see Mr. Barnaby which is represented as a fact by IT.

THIS and THAT can also be used in extended or text references.

An important fact of language use, pointed out by Halliday and Hasan as well as Stenning is that people will do whatever they must to make a text meaningful. They will create contexts, referents, and cohesion where they are lacking or can't be found. The miscues of the subjects in our study attest to this need to make sense.

Possessive pronouns have double anaphoric functions in English. They are coreferential with antecedent nouns or following nouns. And they also replace determiners, principally THE and A which precede most common nouns. In both senses they play important cohesive roles in the text.

Text cohesion is complex and referential cohesion is only one aspect of it. Yet it seems that an understanding of reference and anaphora through the study of pronouns and readers response to them can shed considerable light on how meaning is constructed during reading.

Nash-Webber(1980) urges that the study of anaphora and the related inference must be a multidisciplinary effort. She sees philosophy involved in issues of reference, psychology in memory organization and language development, linguistics in syntactic constraints and generation and interpretation of texts and artificial intelligence in delineating control of inferential processing. Our miscue data base enables us to delineate control of inferential processing by real readers rather then the artificial, programmed minds of computers. We can evaluate predictions of all fields to see whether in fact readers do what they would be expected to do as they transact with pronoun structures in texts.

It must be that position of pronouns, their relative frequency, and the ability of readers to establish possible referents all are significant in text comprehension. The pattern of miscues involving pronouns stand out as a place to begin to look at readers' establishment of referencial relationships as they seek to make sense of written narrative.

Methodology

From our miscue data base we selected three stories used as common tasks across 8 linguistic population groups in a study reported in 1978. (Goodman and Goodman, 1978)

S44, Kitten Jones, was read by 24 second grade readers. S51, Freddie Miller, Scientist, was read by 32 fourth grade readers. S53, My Brother is a Genius, was read by 32 sixth graders. The stories are all from the same basal reader series and are designated for the approximate grade level of our subjects.

In each case, four readers from each population who were average for their grade and school were selected. The eight populations were:

Dialect Groups:	Bi-lingual Groups:
Appalachian(Tennessee)	Navajo(Arizona)*
Downeast (Maine)	Arab(Michigan)
Rural Black(Mississippi)	Spanish(Texas)
Pidgin(Hawaii)	Samoan(Hawaii)*

*These groups did not read S44.

In our past studies which focussed on readers we coded the first 50 non-dialect miscues for each subject for 26 variables. Identical miscues at several text addresses were counted only the first time they occurred. In the current studies all miscues produced by all subjects were recoded for 4 variables: dialect, correction, syntactic acceptability and semantic acceptability.

Each text word or punctuation was assigned an address by page, line and item in the original format of the text as the subjects read it. Miscues were computer listed across subjects in address order. Our data, then, provides us with quantity and quality of miscues beginning at each text address as well as a complete listing of actual miscues at each text address.

The on-going study is dealing with many text characteristics and features. This report focuses on evidence in our data for how pronouns are involved in reader's miscues.

This study is near the naturalistic end of the research design continuum. Each subject read, orally, a complete text. The pronouns are there because the authors, who had no part in the research, needed them or chose to use them in the writing. The texts have not been specially created or adapted for use in the research. They are from basal readers which means they have been edited, but the editing had no discernable intentional relationship to the text features under study.

Though we report quantitative data in this article, our ultimate focus is on examining text comprehension by understanding readers'

transactions with pronoun structures in the three texts.

Distribution of Pronouns in Text

As we indicated, there is a general principle that pronouns will be used in noun positions wherever possible except where ambiguity would result. The problem is that the speaker or writer chooses to use the pronoun and so, to the language producer the pronoun reference is never ambiguous. In written discourse the writer must decide when to use a pronoun and when to use a noun. The judgement may be influenced by the distance from the original reference and the number of nouns which are potential co-referents. But the writer must allow for what will be ambiguous to the reader. Since that's not always completely anticipated, texts will always vary in ambiguity of use of pronouns, from the readers' perspective.

The three texts we have studied differ from each other in a number of ways which will influence the frequency and distribution of pronouns. S44, a second grade story, is shorter than S51, a fourth grade story, which is shorter than S53, a sixth grade story. These basal reader stories employed controlled vocabulary. S53 is a first person narrative.

We'll begin by examining the distribution of pronouns in the 3 texts.

Table 1
Distribution of Grammatical Functions

	Story S44	S51	S53
Nouns*, Total	34.5%	30.8%	29.5%
Common	15.6%	14.2%	14.4%
Proper	6.7%	6.5%	2.3%
Pronoun	9.6%	9.3%	11.6%
Subject	15%	13.2%	13.7%
Object	16.6%	15.3%	13.2%
Noun Modifiers, Tot	10.5%	10.2%	10.7%
Poss. Pronouns	2.2%	2.2%	2.9%
Determiners	9.8%	8.7%	7.7%

*A few nouns were not common nouns, proper nouns or pronouns.

About a third of the grammatical functions of all the words in the texts we examined are nouns. Somewhat more, 34.5% are nouns in S44; somewhat less, 30.8% and 29.5% are nouns in S51 and S53

respectively. Here we are talking about functions in connected discourse, not word classifications.

Fillers of these noun positions vary among the three texts. The most important factor in this variation comes from the fact that S53 is told in the first person and that the narrator remains unnamed throughout the text. About 1/3 of the fillers of noun positions in the three stories are pronouns, but 11.6% of the running words in S53 are pronouns while 9.6% and 9.3% are pronouns in S44 and S51. Furthermore only 2.3% of the words in S53 are proper nouns while 6.7% and 6.5% are proper nouns in the other two stories.

The same first person narrator factor explains why 2.9% of the running words are possessive pronouns in S53 while 2.2% of those in S44 and S51 are possessive pronouns. Third person possessives may be nouns or pronouns. First person possessives are always pronouns. The percent of functions in all three stories which are noun modifiers (including possessive pronouns) is something over 10% so a higher proportion of noun modifiers are possessive pronouns in S53 than in the other stories.

Besides being noun modifiers, possessives also incorporate the determiner function. That partially explains why S53 has the smallest proportion of determiners, 7.7%. But number of determiners is also a function of number of common nouns. S44 with the highest proportion of common nouns has the highest proportion of determiners, 9.8%

Nouns functioning as objects (includes direct object, indirect object, and object of prepositions) and as subjects are about equally distributed in the three stories, with S44 and S51 having somewhat more objects than subjects and S53 somewhat less. Pronouns show a markedly different pattern.

Table 2
Pronouns in Subject and Object Positions

Story	S44	S51	S53
Total Pronouns	78	146	225
Possessives	18	31	62
In Noun Position	60	115	163
Nominatives	49	84	123
Percent	81%	73%	75%
Objectives	11	31	40
Percent	18%	27%	25%

As Table 2 indicates, about 75% of pronouns in noun positions are functioning as subjects. In the case of S44 this is over 80%. That means of course that a much higher percentage of subjects are pronominalized than objects in these stories. Readers' expectations are likely to be influenced by this pattern. They are more likely to predict pronouns in subject than object position. If nouns that are themes or topics are more commonly pronominalized in texts in general then maintaining reference for them may not be difficult.

The data for the three stories shows no strong differences in pattern of pronoun use that seems to relate to the grade level designations. S44's higher proportion of subjective nouns and pronouns as compared to other stories may reflect its shorter sentences with fewer embeddings. Its lower proportion of objective pronouns considering its higher proportion of objective nouns may show some tendency for less complex use of pronouns than the other stories. But otherwise distribution and use of the pronouns in the three stories looks quite similar.

Table 3 shows distribution of pronouns by person, gender, and number in the three texts. It confirms that S53, the first person narrative, has a higher proportion of first person pronouns, 39% compared to 17% in S44 and S53.

Table 3
Pronoun Gender and Number

Story	S44		S51		S53	
	N	%	N	%	N	%
1st Person						
Singular	9	12	20	14	71	32
Plural	4	5	4	3	16	7
Total	13	17	24	17	87	39
2nd Person	6	8	19	13	23	10
3rd Person						
Feminine	25	32	11	8	5	2
Masculine	6	8	65	44	81	36
Neuter	12	15	24	16	19	9
Plural	16	21	3	2	10	4
Total	57	73	103	71	115	51
Totals	78	100	146	100	225	100

S44, with more female characters including a female kitten, has 32% feminine singular pronouns compared to 8% for S51 and 2% for S53. It has only 8% masculine singulars as compared with 44% and 36% in the other texts. So there are more instances of SHE than HE, more HER than HIM, more HER/S than HIS in this text. Though both other stories

have both male and female characters, the stories so focus on the central male characters that the use of masculine pronouns far exceeds feminine pronouns. HE occurs in S53 51 times whereas SHE only occurs 3 times. HIM is found 10 times in S53; HER does not occur as object at all. Among possessives, HIS occurs 60 times but HER/S only 10 times in the same text.

As we pointed out above, S53 is told in first person. So there are far more uses of first person pronouns proportionately than in the other two stories where first person can occur only in dialogue. Almost all the first person pronouns in the two third person narratives occur in nominative case. Second person pronouns also occur mostly in dialogue, and are proportionately less frequent than the other pronouns. Plural pronouns are also less frequent. Most of them are nominatives. IT occurs both as subject and object in all stories, about equally.

This demonstrates that these variations are a function of such particular text features as cast of characters. S44 has a repeated event. The children, as a group, go around snapping pictures. So THEY occurs as a frequent pronoun co-referential with THE CHILDREN.

FIGURE 1 Sequence from S51 Freddie Miller, Scientist

601 At once Freddie set to work seriously at something HE
602 had started for fun. HE ran to the cellar and picked up
603 the small battery HE had intended to use for HIS mother's
604 bell. In his tool box HE found another battery, a ruler, a
605 coil of copper wire, a small bulb, and tape.
606 Carefully HE taped the batteries end to end on the ruler
607 so that THEY touched. HE taped the wire tight across the
608 bottom of the end battery. Then HE ran the wire up the
609 sides of the two batteries to the bulb. After winding the
610 wire around the bottom of the bulb, HE taped IT in place.
611 Next HE placed the bulb so that IT touched the cap on
612 the top battery. The bulb began to glow! Freddie taped
613 the bulb in place on the ruler. Now HE had a homemade
614 flashlight for Elizabeth.

---

701 HE tied a string around the end of the ruler and hurried
702 back upstairs. Pulling the kitchen stepladder out into the
703 hall and climbing up on IT, HE found the transom within
704 easy reach.
705 "Elizabeth, " HE called. "I'm going to drop this light
706 down to you through the transom. Catch IT by the ruler
707 and let ME know when YOU can reach IT."

Focus on an Exemplary Passage

Figure 1, an excerpt from S51 illustrates the distribution of pronouns and several other key phenomena of pronoun distribution. FREDDIE, a proper noun, is used in line 601. (Page 6, Line 1 of the printed text) FREDDIE is the grammatical subject and theme of the next six clauses. In all but one of these HE is used instead of FREDDIE. In that sixth clause the subject has been deleted with AND conjoining it to the prior clause: HE RAN TO THE CELLAR AND PICKED UP...

On line 607 the subject of the clause is BATTERIES, introduced as the object in the prior clause and replaced by the pronoun THEY here. HE continues to be used in place of FREDDIE all the way to line 612. In one clause the verb, WOUND, is transformed to WINDING, a participle, so that the subject is not needed: AFTER WINDING THE WIRE... rather than: AFTER HE WOUND THE WIRE.

The first pronoun to appear in the object position in this excerpt is IT. There are a series of references to the BULB starting on line 609. In the third and fifth of these IT is used instead of BULB. In both cases BULB has appeared in prior clauses in the same sentences.

All through this passage the author is describing a series of operations FREDDIE performed on the various components of the flashlight he is making. Not until the focus shifts in line 612 from FREDDIE to the BULB does the author feel the need to reintroduce the proper noun. After THE BULB BEGAN TO GLOW the author uses FREDDIE rather than HE. The theme of each sentence in the passage prior to this has been FREDDIE fairly consistently. When this shift in theme takes place the author feels the need to reaffirm FREDDIE as the coreferent for HE.

The passage continues after that as it did before with the focus on FREDDIE and what he did. The author either continues to use HE or participial clauses with subject deletions, except in the dialogue where pronouns for FREDDIE shift to I and ME.

In the 21 lines of the passage, excerpted from the whole text, there are 21 references to FREDDIE as subject and one as object. But the name only appears twice. The author apparently saw little possibility of ambiguity of references to FREDDIE in this passage. On the other hand the author keeps using nouns for the variety of parts of the flashlight until the coreferent is in the immediately preceding clause. That's illustrated in the use of THEY for BATTERIES on line 607. It also is shown in the use of IT for BULB on lines 610 and 611 and in the use of IT for stepladder on line 703. The author seems to be concerned about reference for these parts because there are several noun phrases that could be coreferents in

the nearby text. It should be noticed that it does not seem to be distance between antecedent noun and pronoun which governs the reintroduction of the noun but other factors such as which noun is thematic and what other potential coreferents there are that guide the author.

On line 706 and 707 the author uses IT twice to represent the LIGHT even though there are other nouns, TRANSOM and RULER, between the coreferent and the pronoun. The choice seems to be guided by the semantic clarity of the reference to the LIGHT.

Miscue Patterns on the Passage.

In this passage, we get insights into the text factors influencing the author's decisions on using pronouns. The miscues made by our 32 subjects on this passage show how readers transact with the same text factors. Every pronoun use requires an inference, on the part of the reader, of a non-explicit referent. The author's care in choosing when to use pronouns has made that task somewhat easier than it might be, still the reader must make inferences.

Our miscue analysis data concerning pronouns reveals that there is a very large range of difference in the distribution of miscue activity around them. Any pronoun can, in certain places in the text, be involved in much miscue activity. At some other points in the text this same pronoun may stimulate no miscue activity at all. The text provides certain constraints which influence the amount and degree of miscue activity. These constraints have to do with degrees of ambiguity but they also produce different inferences and predictions among the readers.

There is also a range of responses in how readers deal with these constraints. At certain places in the text there is a greater tendency for readers to self correct than in other places. There are also places in the text where there are opportunities to recover a previously miscued coreferential noun.

The most important evidence in the miscue patterns for this passage is that our 32 readers are able to make most of the inferences successfully for the pronouns in the passage. Where miscues do occur they are highly constrained by the reader-text transactions.

Although each reader responds differently to the same text, certain patterns of miscue activity occur around specific text features. Examining these patterns can make clear what the text-reader transactions are in reading a text.

Here are some illustrations of some transactions from our miscue data in the passage cited in Figure 1.

Variability of Miscue Occurrence.

As has already been shown, the number of subjects who miscue on a given pronoun or who make identical miscues varies. There are no miscues in several places where HE is used in this passage:lines 601, 606, 613, 705. Apparently no readers had any conflicts in these instances. On the other hand, there are 9 miscues on HIS in line 604, 8 of them substitutions of THE. There are four miscues on THEY in line 607, three of them involve HE substitutions. There are 8 miscues on IT in line 611, all but one involving substitution of HE. The variability shown here is not random. If 25% of 32 subjects substituted THE for HIS in line 604, there must be some text features interacting with some common reader expectations such that subjects have all drawn common inferences. The difference between HIS and THE in this context suggest what those features are.

Possessives, as we said serve as determiners as well as providing reference to nouns. All of the miscues on HIS in its two occurrences in this passage show a retention of anaphoric reference but a deletion of specific coreference with Freddie. Since shifting to THE from HE keeps anaphoric reference but loses coreference with FREDDIE, readers have made the shift either because use of HIS seems redundant and unnecessary or because they have trouble accepting that a boy would possess a tool box.

Variability of Self-corrections

Patterns of self-corrections vary just as do miscue patterns. None of 8 substitutions of THE for HIS on line 604 were corrected. But 2 of 3 HE for THEY substitutions in 607 were corrected as were 2 of 3 THE for HE substitutions in the same line. IT is omitted by four readers on line 610 and corrected by three. Two of seven readers who substituted HE for IT on line 611 correct. But there were four miscues on ME in line 707, all different and all corrected. Again, the transactions between text and reader, in context, guide the self-monitoring and correcting of the readers just as they control production of the original miscues.

Conjoining with pronoun deletion and AND insertion.

The author, as we've said, chose to omit HE before PICKED UP in line 602, using AND to join the two clauses and eliminate the necessity for repeating the subject in the second clause. Four of our 32 readers substitute AND for the next HE on line 603. Only one self-corrects. One reader does the same thing on the next occurrence of HE on line 604 but corrects that. Four readers substitute AND for HE on line 703. Also on line 703 there is a transformation in the

opposite direction: two readers substitute HE for AND. One corrects.

What these miscues show is that the same options which the author had are also available to the readers as they construct their own meaningful texts.

Determiner and Deictic Miscues

There are no substitutions of nouns for pronouns in this passage, and as will be discussed later, there are few in the entire study. A related phenomenon which does occur however, is the substitution of determiners or deictics for pronouns or the reverse. These show the readers' anticipation of common noun phrases, which begin with determiners, rather than pronouns or vice-versa.

Substitutions of HE for THE occur as follows:

607(end) 1, unsuccessful correction
611(near end) 1, corrected
612(second THE) 1, corrected

Substitutions of THE for pronoun occur as follows:

603 THE for HIS 2, 1 corrected
604 THE for HIS 8 0 corrected
607 THE for HE 3, 2 corrected
610 THE for HE 1, 1 corrected
611 THE for HE 1, 0 corrected
611 THE for IT 1, 0 corrected
703 THE for IT 3, 2 corrected

Deictic for pronoun or vice-versa:

603 THIS for HIS 1, 0 corrected
604 THIS for HIS 1, 1 corrected
705 HIS for THIS 1, 0 corrected

Shifts in Person(referent change):

Some miscues show shifts in person while retaining the pronoun function. It's likely, in these instances, that there has been a shift in referent:

607 HE for THEY 3, 2 corrected
608 IT for HE 1, 0 corrected
610 SHE for HE 1, 0 corrected
611 HE for IT 7, 2 corrected
701 ME for HE 1, unsuccessful correction
707 ONE, IT, YOUR for ME, all corrected
707 IT, YOUR for YOU, no correction

The shift in referent for some of these, particularly where several subjects have made the same miscue, is evident. On 607 and in

611 readers seem to expect the subject of the verb, TOUCHED to be FREDDIE so they shift in one case from THEY to HE and in the other from IT to HE. That keeps FREDDIE as the theme. It also may reflect the expectation that TOUCHED will have an animate subject.

Shifts in Pronoun Case

There are fewer shifts in case than in person in this passage and in the entire study. That reflects a strong tendency of readers, as other miscue research has demonstrated, to maintain syntactic constraints.

701 ME for HE, unsuccessful correction.
707 YOUR for ME, corrected
707 YOUR for YOU

We've taken the time here, following the discussion of the distribution of pronouns in the texts, to examine the author's use of pronouns in a passage from one of the stories and the relationship of readers' miscues to that pattern for an important reason. In the next section we'll be discussing some general data on the miscues generated by our subjects which relate to pronouns in the three texts. While the data is informative, it's necessary in considering it, to always keep in mind how text specific the miscue patterns are. Line 611 is not the only instance in S51 or the other texts where readers have substituted HE for IT. But it is the only one of five occurrences of IT in this passage where such substitution of HE occurred. To understand how readers process pronoun structures we will need to look at the relationships of miscue patterns to the specific text characteristics readers are transacting with.

Miscue Patterns and Text Features

Table 4
Pronoun Miscues and General Miscue Data

	Words	Pronouns	Total* Miscues	Pronoun Miscues	MPHW** Per Sub.	PMPHP***
S44	698	78	2867	160	17.11	8.55
S51	1369	146	5830	327	13.31	7.00
S53	2030	225	8790	675	13.54	9.37

*Includes dialect and repeated miscues not counted in past studies. **Miscues per 100 words. ***Pronoun miscues per 100 words.

Pronoun and Miscue Frequency in the Three Texts

Readers of all 3 grade levels make considerably fewer miscues on pronouns, proportionately, than on other words. Table 4 shows that S44 has mean miscues per hundred words(MPHW) of over 17 but miscues per hundred pronouns is only half as frequent. The other two stories also show considerably higher rates of MPHW generally than miscues per hundred pronouns. S53, has the highest rate of pronoun miscues, 9.37 which may reflect the more diverse and complex pronoun patterns in the sixth grade first person story. It may also be that the rate of pronoun miscues in second grade S44 is higher than fourth grade S51 because of some greater difficulty establishing reference.

The data point to some simple conclusions. All three texts include a considerable proportion of pronouns. Subjects are considerably less likely to make miscues on pronouns than on other words at all three grade levels. Over 90% of pronouns were read correctly by all three age groups. In itself this pattern appears to contradict a view that pronouns are harder to process than other words or that the ability to deal with pronouns is developmental across grades. But of course this quantitative information must be considered in the context of more qualitative information which is a major concern of this report.

Table 5
Substitutions For and BY Pronouns

STORY	S44		S51		S53		Total	
	For	By Pronouns	For	By Pronouns	For	By Pronouns	For	By Pronouns
Nominatives								
Total Miscues	95	81	155	166	425	381	675	628
Pronoun Miscues	35	35	80	80	251	251	366	366
%	36.8	43.2	51.6	48.2	59.1	65.9	54.2	58.3
Possessives								
Total Miscues	47	32	91	56	151	150	289	238
Pronoun MIscues	16	16	19	19	55	55	90	90
%	34.0	50	20.9	33.9	36.4	36.7	31.1	37.8
Objectives								
Total Miscues	18	15	81	22	99	59	198	96
Pronoun Miscues	8	8	13	13	45	45	66	66
%	44.4	53.3	16.0	59.1	45.5	76.3	33.3	68.8
Total								
Total Miscues	160	128	327	244	675	590	1162	962
Pronoun Miscues	59	59	112	112	351	351	522	522
%	36.9	46.1	34.3	45.9	52	59.5	44.9	54.3

Distribution of Instances With Pronoun as Observed and Expected Responses

Table 5 shows total miscues involving pronouns. It shows miscues which involve substitutions for pronouns in the text (For Pronouns) Here is an example:

THE
Father always called HIM Tinker ...

Table 5 also shows miscues which involve substitutions by pronouns of other text words. (By Pronouns):

HIS
...he was always like one of THE uncles

Because of the uneven distribution of pronouns and the demonstrated relationship this distribution has to specific text characteristics, it should not be surprising that the number of text points where each pronoun occurs as an insertion or substitution for a text word is roughly proportionate to the actual occurrence of that pronoun in the text. Readers are led to expect pronouns to occur in proportion to their actual occurrence and thus particular pronouns occur as observed responses in miscues in similar numbers to the number of times each pronoun occurs in each story.

S44, with more feminine characters, has 12 uses of SHE and 10 other places where SHE occurred as the OR(observed response) in miscues on words other than SHE. S53, a first person narrative, is the only one of the three texts that has appreciable occurrences of ME, 10. There are 8 instances in that text were ME is substituted for other text words and only 1 in the other two texts. Overall, there are similar numbers of miscues of the 2 kinds (For pronouns and By pronouns) within each pronoun case in each story; for example there are 155 substitutions FOR nominative pronouns in S51 and 166 replacements of other words BY nominative pronouns in that story.

There are a few examples where instances involving the pronoun as observed response (OR) are quite different than the number of text instances. There are 81 miscues on objective pronouns in S51 but only 22 miscues involving objective pronouns replacing other text words. This probably reflects the readers being more likely to expect pronouns in subject than object positions. For example, in both S51 and S53 there are 9 uses of IT as subject. But in each text there were considerably more instances of IT as miscue OR in subject positions, 26 for S51 and 20 for S53. On the other hand there were fewer instances of IT as OR in object position in both stories than the occurrence of IT as object in those texts. In no case, however are there any substantial number of occurrences of particular pronouns as OR in other miscue instances unless those pronouns also occur in considerable number in the text.

These facts strongly support the view that readers are making predictions in terms of the text cohesion represented by pronouns and conversely that text features tend to conform to readers' expectations. Disproportions among the two kinds of miscues (BY and FOR) must also involve text features. In S53, the OR instances exceed the text instances for nominative pronouns I, WE, YOU, HE, IT, and THEY. Below we will demonstrate that this is largely due to a single phenomenon, the substitution of nominative pronouns for contractions involving the same pronouns plus BE forms. (I'M, WE'RE, YOU'RE, HE'S, IT'S, THEY'RE)

Proportion of Miscues Involving Pronouns Replacing Pronouns.

A high proportion of miscues on pronouns involve substitution of other pronouns. That fits with the general finding of other miscue research that readers tend to maintain grammatical function in generating miscues. Table 5 reports the data relating to this pronoun-for-pronoun phenomenon for all three texts.

For the two kinds (as ER and as OR) of miscues in S44 the percents are 37% and 46%. For S51 the percents are 34% and 46%. For S53 these percents are 52% and 60%. For all three texts combined pronoun for pronoun miscues accounted for 45% of miscues on text pronouns and 54% in which other words in the text were replaced by pronouns. In general pronoun-pronoun miscues were higher proportions of substitutions BY pronouns than FOR text pronouns. It is clear that there is a strong tendency to replace pronouns with other pronouns.

Percents of the two kinds of miscues that are pronoun for pronoun are most consistent for nominative pronouns in all three stories and more variable for objective and possessive pronouns. That may reflect the high proportion of nominative pronouns. The percents of nominative pronouns which are pronoun for pronoun increases from grade to grade. This may relfect the greater awareness of older readers of the text cohesion factors reflected in high proportions of pronouns being nominal.

If text characteristics can explain the miscues involving pronouns and non-pronouns then the proportions above will seem even more significant. So before examining pronoun-for pronoun miscues we look in some depth at the miscues involving pronouns and non-pronouns.

Types of Miscues Involving Pronouns and Non-Pronouns.

The types of non-pronouns which substitute for or are replaced by pronouns in the reader's miscues is quite limited. Except for scattered examples, they all fall into the categories:

Contractions
Determiners

Conjunctions
Preposition/particles
Deictics

This small range shows the strong constraints on miscues exercised by the reading process especially the syntactic structure and the readers' intent to make sense of the text.

Table 6
Miscues Involving Pronouns and Non-pronouns

	S44				S51				S53				Total			
	Pron By		Pron For		Pron By		Pron For		Pron By		Pron For		Pron By		Pron For	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Nominative																
Contraction	16	33	12	27	8	12	60	72	54	39	43	37	78	31	115	47
Determiner	10	20	10	22	19	29	11	13	37	26	19	16	66	26	40	16
Conjunction	5	10	4	9	21	32	4	5	19	14	15	13	45	18	23	10
Preposition	2	4	2	4	2	3	3	4	5	4	11	10	9	4	16	7
All Others	16	33	17	38	16	24	5	6	25	18	28	24	57	22	50	20
Total	49		45		66		8		140		116		255		244	
Possessive																
Contraction	0	0	0	0	2	4	2	7	1	13	4	4	3	2	6	4
Deictic	3	10	1	6	6	11	7	26	3	3	2	2	12	7	10	7
Determiner	18	62	7	44	42	74	17	63	61	70	56	59	121	70	80	58
Conjunction	0	0	0	0	0	0	1	4	6	7	0	0	6	4	1	1
Preposition	2	6	1	6	0	0	0	0	8	9	9	10	10	6	10	7
All Others	6	21	7	44	7	12	0	0	8	10	24	25	21	12	31	22
Total	29		16		57		27		87		95		173		138	
Objective																
Contraction	0	0	1	14	0	0	0	0	1	4	0	0	1	10	1	3
Determiner	2	33	3	43	16	52	2	22	8	35	2	14	26	43	7	23
Conjunction	1	17	0	0	1	3	1	11	0	0	0	0	2	3	1	3
Preposition	2	33	1	14	11	35	2	22	8	35	2	14	21	35	5	17
All Others	1	17	2	29	3	10	4	44	6	26	10	71	10	17	16	53
Total	6		7		31		9		23		14		60		30	

Table 6 shows that for the 3 pronoun cases, about 2/3 or more of all non-pronouns replacing or replaced by pronouns involve only the categories above.

Deictics, (THIS, THAT, THESE, THOSE) occur in miscues involving only possessive pronouns. When deictics substitute for nominative and objective pronouns they become pronouns and are therefore not counted in this table. Contractions in pronoun miscues overwhelmingly involve

nominative pronouns. Determiners interact with all three cases. Conjunctions primarily are involved in nominative pronoun miscues. Prepositions are most frequent in nominative pronoun miscues though they also occur in objective pronoun miscues.

Noun Phrase-Pronoun Miscues

One type of miscue is notable by its absence. Considering that pronouns are often coreferential with nouns, it would seem logical to expect that one common miscue involving pronouns would be substitution of or for the co-referential noun or some other noun the reader had made coreferential. In fact such miscues are almost non-existent in the reading of these three texts.

Only one pronoun in one story involves several identical noun-pronoun miscues. In S44 one character is named SUE. There is only one instance of SUE being substituted for SHE in that story. Butthere are 6 miscues at four different occurrences where SHE is substituted for SUE. Clearly the additional factor of graphic similarity is involved here though it's interesting that most of the miscues involve substituting the pronoun for the noun. That would indicate that in the basal story the noun may have been used more often than the readers expected it. Failure to substitute SUE for SHE more often also seems to show readers' expectation of pronouns in repeated coreferential text points.

The only other noun-pronoun miscues are single miscues on single pronouns:

S44 PENNY for HER(poss); GIRL'S for HER(poss)

S51 THINGS for THIS

S53 THEY for WAY; MOM for MY; HOSE for WHOSE; STEM for THEM;
IT for THE TIME; TIME for THEM

This almost total lack of interchange of noun for pronoun is certainly not accidental. Considering the frequency of other miscues and the number of opportunities our 88 readers had to make such miscues there has to be an important complex of reasons why this isn't happening. We suggest that it is the strong sense of cohesion which causes readers to expect pronouns and not expect nouns in particular text noun positions. That's also explains why there is such a high proportion of pronoun-for-pronoun miscues.

Determiners and Pronouns

One phenomenon that relates to the one just discussed is that of miscues involving pronouns and determiners. If a reader were to

substitute a noun phrase for a pronoun or vice-versa, unless the noun were a proper noun the reader would expect it to be preceded by a determiner. The reader would begin to the noun phrase with a determiner, THE for example, realize the noun doesn't follow and so self-correct. In fact, there is a substantial amount of such miscue activity involving pronouns and determiners in the three stories. Table 7 shows the HE/THE substitutions in the three texts:

Table 7
THE/HE Miscues in the 3 texts.

	THE or HE		HE for THE	
	Frequency	Instances	Frequency	Instances
S44	1	1	3	2
S51	12	6	1	1
S53	17	10	7	4

*An INSTANCE is a single occurrence of a pronoun in the text.

Note that there are more THE for HE than HE for THE miscues. Again the graphic similarity between HE and THE may contibute to this type of miscue. But that could not account for the greater proportion of THE for HE than HE for THE. THE is the most common word in English so that may help explain the tendency to expect it. In any case, as our depth discussion of the S51 passage showed earlier, graphic similarity is never a sole factor in these miscues

The same phenomenon occurs with other pronouns and other determiners. There are seven substitutions of A for SHE at five locations in S44 and two substitutions of SHE for A in the same story. There are 9 substitutions of A for I and 8 of I for A in S53. THE is substituted for HIM twice and for IT eight times in S51.

Miscues that involve determiners and possessives show a stronger and different pattern. As we said earlier possessive pronouns subsume the determiner function. If there are interchanges of possessives and determiners they will result in acceptable syntactic and semantic structures. Since determiners, particularly THE have an anaphoric quality there will often continue to be referential cohesion after such miscues and coreference may be more, less, or the same.

Table 8 shows that the interchange of possessive pronouns and determiners is indeed a matter of readers coping with text cohesion. Though the heaviest incidence involves substitutions of THE for HIS, many other combinations are found more or less in proportion to the distribution of the pronouns in the texts. A is involved as well as THE, as are first, second, and third person possessives. Lack of examples of ITS simply reflects its infrequency in the text. Furthermore, as the table shows, the phenomenon occurs at numerous instances with multiple identical miscues by different subjects often

at the same text point. For example there are an average of 4 THE for HIS substitutions at the 10 text locations where such miscues occur in S51. There are an average of 3.6 HIS for A substitutions at the 5 occurrences of A which have such miscues in S53. That means that this phenomenon is text specific as well as general. It's a general tendency which happens when certain text conditions are present. Those text conditions move the reader toward more explicit referential cohesion in the case of possessive for determiner miscues and toward less explicit referential cohesion in the opposite case.

Table 8
Determiner-Possessive Miscues

	THE for		A for		for THE		for A	
	F	I	F	I	F	I	F	I
MY								
S44	------		------		-------		------	
S51	------		------		-------		1	1
S53	11	5	3	3	4	4	3	2
OUR								
S44	------		------		-------		------	
S51	------		------		-------		------	
S53	------		1	1	4	2	------	
YOUR								
S44	------		------		-------		------	
S51	------		------		1	1	------	
S53	4	3	2	2	5	3	------	
HIS								
S44	10	2	------		-------		------	
S51	40	10	1	1	4	3	5	3
S53	30	10	8	5	22	12	18	5
HER								
S44	------		1	1	5	3	------	
S51	------		------		-------		1	1
S53	1	1	1	1	-------		------	
THEIR								
S44	5	2	------		2	2	------	
S51	------		------		------		------	
S53	------		------		------		------	

F=Frequency of Miscues
I=Instances of Pronouns

Pronouns and Deictics

A related phenomenon involves another kind of pronoun miscue. In this phenomenon deictics, THIS, THAT, THESE, and THOSE are interchanged with possessive pronouns. Again the most common interchange is between HIS and THIS, which are graphically related, but also high frequency words. But there are enough other combinations to indicate that the graphic relationship only enhances the phenomenon; it's not essentially causal.

S44 THIS for ITS (3 miscues at 2 instances); THEIR for THOSE

S51 THIS for HIS (6 miscues at 5 instances); HIS for THIS (12 miscues at 2 instances)

S53 MY for THAT; THIS for HIS (3 miscues at 1 instance); HIS for THIS (2 miscues at 2 instances)

These uses of THIS, THAT, THESE, THOSE are deictic in the sense that they point to their referents. They often occur in dialogue and are exophoric, with their referents in the situational context of the dialogue. Shifts between pronoun and deictic either make referential cohesion more or less explicit. On line 604, in the S51 passage we discussed above, eight readers read "In THE tool box" and one read "In THIS tool box". The passage deals with FREDDIE, a boy the age of the readers. A fair number of our readers seem to be rejecting the possibility that a boy can possess a tool box since the result is to lose the specific referent. At another point in the same story this sequence occurs:

Figure 2 Deictic Example from S51

317 As he was eating, Freddie decided to fix the clock.
318 Then the next morning, his father would say, "Why, the
319 clock works after all!"And Freddie would say, "I fixed
320 it, Father. It was easy."
321 There was only one thing wrong with THIS dream.

The phrase THIS DREAM in line 321 refers to the imagined clock fixing sequence which precedes it. Readers must infer that THIS DREAM refers to the imagined sequence. Miscues on THIS in 321 are ITS, THAT(c), THE 8(3c) and HIS 5(1c). That means that 15 of 32 readers read one of these four words instead of THIS. Those who shift to THE for THIS have reduced the cohesiveness of the resultant text. That would indicate some possible confusion over the reference. And indeed

three of eight feel the need to self-correct.

Those who shift to HIS from THIS make the referent more explicit, not just THIS DREAM but HIS(FREDDIE'S) DREAM. Only one of these 5 readers corrects. The reader who shifts to ITS shows the same motivation to increase specificity of reference but is less successful. The THAT for THIS substitution turns out to be a contextual synonym. Neither meaning nor referentiality are affected. All of these miscues and the related self-correction patterns show the text specific nature of a general concern for text cohesion on the part of these fourth grade pupils.

These deictic terms also interact with nominative and objective pronouns, that is those in true noun text positions. Deictics can take on pronoun functions as these text examples from S51 show:

0411 "That wasn't the school bell," said Mrs. Miller.
0414-5 "That can't be!
0721 "Now what's all this about, Elizabeth?" asked Father.
804-5 "After this we must make some allowance ...

The examples also show that the coreferents for deictics in pronoun positions tend not to be single nouns which appear in the prior text. Deictics tend to have extended or text referents.

There are these miscues in the three texts:

S44	THESE for THEY	THEM for THESE	
S51	WE for THAT	THAT for HE	IT for THAT
	HE for THIS	SHE for THIS	THEM for THESE
	IT for THIS	6 miscues at 5 instances	
S53	ME for THIS	HIM for THIS	THIS for I
	IT for THIS(Objective)	2 miscues at 2 instances	
	IT for THIS(Nominative)	THAT for YOU-Nominative	
	THAT for THEY	5 miscues at 3 instances	

Only IT for THIS in S51 and S53 and THAT for THEY in S53 show multiple miscues at multiple instances. In any case the amount and range of pronoun miscues involving deictics shows again the readers concern with cohesion.

Table 9
Contraction/Pronoun Miscues

	S44		S51		S53	
	F	I	F	I	F	I
I for I'M	1	1	2	1	7	3
I'll	4	1	15	5		
WE for WE'RE					4	2
WE'VE					12	3
YOU for YOU'RE			16	3	1	1
HE for HE'S			9	1	19	4
HE'D					20	3
IT for IT'S	7	1	18	6	20	2

I=Text instances F=Frequency

Contractions and Pronouns

In our discussion above, we said that one factor could account for why instances with nominative pronouns as observed responses for other text words exceed instances involving substitutions for the same pronouns as expected responses. This factor is the substitution of pronouns for contractions composed of those pronouns plus BE forms. These could also be viewed as omissions of BE forms. Table 9 shows the figures from the three stories.

Our readers are exercising primarily dialect options, in these miscues. Of our eight language groups some show a tendency to delete BE forms in present tense particularly where they are contracted. That's what they would tend to do in their oral language and that's what they tend to do in their reading. Had we not counted the dialect miscues, the percent of all miscues which are pronoun-for-pronoun would have increased considerably for nominative pronouns.

There is some tendency as the figures above show for this phenomenon to affect other non-Be form contractions: WE'VE, HE'D, I'll. There also is a tendency for contractions to be substituted for the PRONOUNS. There are 11 HE'S for HE substitutions at 9 instances and 12 IT'S for IT substitutions at 3 instances in S53. These latter may be over reactions to the readers awareness of their tendency to shift in the other direction.

Table 10
Pronoun/Conjunction Miscues

	S44		S51		S53	
	F	I	F	I	F	I
AND for I	2	1			11	10
I for And					2	2
AND for YOU	1	1	2	1	1	1
AND for HE			19	9	5	5
HE for AND			2	1	6	5
AND for SHE	2	2			2	1
SHE for AND	1	1				
AND for IT			1	1		
THEY for AND	1	1				

Pronouns and Conjunctions

In our exemplary passage we showed miscues involving pronouns being substituted for conjunctions and vice-versa. Every substitution is a simultaneous omission and insertion. In the case of pronouns being interchanged with contractions the apparent substitution is really the exercise of two different transformational options: omission of a pronoun and insertion of a conjunction or vice versa. If two clauses are joined by AND and have the same subject then the surface subject of the second may be dropped. That creates a null anaphora. Conversely where the author has exercised that option the reader may choose the alternative deleting AND and inserting the pronoun in the subject position to complete the surface clause structure.

Table 10 shows the figures for AND/pronoun interchanges in the three texts. Note that all pronouns involved are nominal; there are no miscues involving AND and objective or possessive pronouns. The option to delete the subject of subsequent clauses in the same sentences can only be exercised if it is identical with the subject of the preceding clauses. That means the coreferent is retrievable by reversing the deletion rule.

In this study, the only other conjunction involved in miscues with pronouns is SO. SO is replaced by SHE once each in S44 and S53. It is replaced by HE once in S51.

Again, the range of pronouns and instances involving this conjunction-pronoun phenomenon strongly support our contention that our subjects are exercising transformational rule options as they construct the text for themselves. It illustrates the interaction of

syntactic and semantic cohesion factors and their use by the readers.

Pronouns and Preposition/Particles

A modest number of the miscues produced on our three texts involve pronouns being interchanged with preposition/particles. We use that classification because the set of words involved can occur as either prepositions or as verb particles. The most common preposition/particle involved in these miscues is IN:

S44 SHE for IN; IN for HER; ITS for IN

S51 IN for I; IN for IT(nom.)(6 miscues at 2 instances); IT for IN
IN for IT(obj.)(7 at 4 instances); IN for YOU

S53 I for IN (2 miscues at 2 instances); In for IT(nom.)(2 miscues at 2 instances); ME for IN; IN for IT(obj.)(3 miscues at 3 instances);
IN for YOU

Several miscues involve TO:
S44 I for TO
S51 HIS for TO; TO for HE; HE for TO
S53 TO for I (3 miscues at 3 instances); TO for YOU (2 miscues at 2 instances); YOU for TO; IT for TO; TO for IT

Other preposition-particles involve only a few miscues:

AT-
S51 IT for AT; AT for IT (both nominative)
S53 HIS for AT

UP-
S51 UP for US (2 miscues at 1 instance)
S53 YOU for UP; UP for US(4 miscues at 2 instances)

BY-
S53 BY for MY; MY for BY (3 miscues in 2 instances)

WITH-
S44 WITH for WE
S53 WE for WITH (2 miscues at 2 instances); WITH for HIS

Others-
S53 OUT for MY; OUT for OUR; FROM for MY; OF/HIS

Several things standout in the examples above. Most of these miscues are scattered: that is they are single miscues at particular instances. There are exceptions however, particularly involving IT and IN in S51. As we've said to understand this it's necessary to

look at specific text sequences involving these multiple miscues.

The prepositions IN, TO, and AT occur relatively frequently in the three texts. But some other preposition-particles are also very common which are not involved in miscues with pronouns: OF, FOR, ON for examples. It must be that the factors that produce interchanges with pronouns are more complex than frequency of opportunity.

There is some graphic influence evident in these miscues: IN/IT and UP/US miscues show this influence. Again as we've said earlier this influence only operates within the general syntactic and semantic text constraints.

Other Non-pronoun Substitution Miscues

Besides the few categories of non-pronouns interchanged with pronouns discussed above, there are some scattered miscues involving other types of words.

A few words occur at least partly because of graphic similarity to particular pronouns:

THERE/THEY IS/IT MAY/MY OH/OUR WERE/WE FOUR/YOUR
HERE/HER HOW/WHO BE/HE USE/US HIT/IT WERE/WE'RE

Some of the above examples also have some syntactic relationship e.g HOW/WHO. Others involve complex phonological relationships in one or more dialects, such as THERE/THEY, or HIT/IT.

But a lot of these scattered substitutions are not so much related to the words that are replaced as to something else in the surrounding text. Examples are shown in Figure 3.

Figure 3 Contextual Influence Examples from S53

```
                                LITTLE
0512 "The typical baby. That's IT.

0522 Typical, that's it, typical!.
0523 The typical baby!"
0524 "Yes, sir." I said.
0525 He placed his had on my shoulder. "You know," he
                                     IT(6)
0526 said, "I think you may have HIT on a gold mine, my boy."
```

In the first example above a subject substitutes LITTLE for IT, which is a semantically appropriate prediction. In the second example, 6 readers are led to expect a pattern of use of IT and substitute HAVE IT for HAVE HIT, changing HAVE from auxiliary to a transitive verb in the process. Only one corrects.

Omissions and Insertions of Pronouns

Table 11
Omissions and Insertions of Pronouns

	Omissions						Insertions					
	S44		S51		S53		S44		S51		S53	
	F	I	F	I	F	I	F	I	F	I	F	I
Nominative:												
I			2	2	15	10					5	4
WE			1	1							4	3
YOU	1	1	1	1	2	1			2	2		
HE					13	11			2	2	5	5
SHE	4	3	3	2	2	1	1	1				
IT	4	3	2	2	4	3	1	1	1	1		
THEY	3	3	1	1	1	1						
Objective:												
ME			1	1	5	2			1	1		
US					8	2						
YOU			8	5	4	3						
HIM			2	2	2	2					3	3
HER	3	2										
IT			21	7	11	5						
THEM			5	1								
Possessive:												
MY			1	1	8	6					1	1
OUR					1	1					1	1
YOUR			2	2	6	3					1	1
HIS			12	9	1	1	1	1	11	4		
HER	2	2			1	1						
ITS	1	1										
THEIR												
Totals	18	15	62	37	84	52	2	2	17	10	20	18

Table 11 shows omissions and insertions of pronouns by readers of the 3 texts. While not as numerous as the substitutions, they represent interesting aspects of the text-reader transactions and help to round out our understanding of readers' processing of pronouns.

Omissions of pronouns are considerably more common in the 3 texts than insertions. In the general data that this study is based on, about 10% of miscues are word level omissions while about 4% are word level insertions. (Goodman and Goodman, 1978, p 4-117).

Many omissions and insertions are single miscues at particular text points. But there are multiple identical examples of both types of miscues in the three texts.

Past miscue research has shown that omission miscues are of two types, deliberate and non-deliberate. Deliberate omissions are deliberate in two senses. They are intentional and conscious. But they are also deliberate in the sense that they result from deliberation, thinking about what to do. (Goodman and Gollasch, 1980). It is hard to imagine a deliberate miscue on a pronoun since deliberate miscues involve some uncertainty about the word in context. Rather both omissions and insertions of pronouns seem to be the product of processing the text and generating alternate structures in which pronouns may be omitted or inserted. Figure 4 shows some structures involving possessives from S51 illustrate one type of omission and insertion in which possessive pronouns are syntactically optional and the author and reader may choose to make reference more or less explicit:

Figure 4 Omission and Insertion Examples from S51

```
                                    Ø
204-5 ...just like YOUR Uncle August
       Ø
211   HIS father usually called him Tinker because he loved
                  HIS
212  to tinker with/ machines, tools and chemicals.
                        HIS                    Ø
310  Freddie didn't mind/ being compared with HIS Uncle...
                       Ø
318 Then the next morning, HIS father would say...
                                                YOUR(Ø)
322-3 Freddie knew his mother would say, "Just like / UNCLE
                                          Ø
407 That night Freddie dreamed that HIS teacher was
                      HIS
408 talking angrily to / Father.
                         YOUR (2)          Ø
502 ..."You're just like / Uncle Charles. MY brother Charles...
                                                Ø (4,1c)
508 He was making an electric bell as a surprise for HIS mother.
```

Ø=omitted text word / indicates point of insertion

To a certain extent this pattern is partly a response to the author/editor style of S51. There are far fewer examples in S44 or S53 because such structures are not present to the same degree.

```
S44                                        HIS
107-8 Jack Jones always went around in / overalls or a sun suit.
```

S53 Ø(3,1c)
105-6 He helped MY mother with her coat...

Ø
226-7 we get a good education in our school

Ø(2)
408-9 Well, my idea would be for you to choose a baby for YOUR TV programs.

Very few of these insertions or omissions are corrected. That's because they don't usually make a difference to the meaning of the text since the reference of the possessive is strongly implicit anyway.

One thing that contributes to these miscues is the use of terms like FATHER, MOTHER and UNCLE as proper nouns in stories for children. Readers, by supplying determiners or pronouns or deleting them produce a shift from common to proper nouns and the reverse. A related phenomenon in S44 is the name of the kitten which is Kitten Jones. There are no pronoun insertions before KITTEN but there are several insertions of A or THE particularly when KITTEN is used alone as the name without JONES.

A,THE
601-2 "It was on the roll next to the picture of / KITTEN.

THE(2)
605 "/Kitten took that picture!

Some omissions of pronouns occur in particular text structures where they are possible but not essential in the surface structure:

S53 Ø(4)
213-4 "it helps ME to remember word definitions...

Ø(2)
615 And HE gave me a big wink.

1007 I stood by the crib and opened
Ø(6)
1008 the dictionary. I opened IT to the S's.

S51 Ø(5) Ø(2-1c)
815 Mrs. Miller smiled (AT THEM) and then SHE said something..

S44 Ø(c)
413-4 I'll have to turn IT to the next one.

Ø(2-1 uc)
708-9 "I give HER this pretty round ball

Some insertions are similarly optional in particular contexts:

```
S53      YOU(2)
407 Now / see here!

                    my
604 my mother and / father

S51                 ME
406 Please pass / the clock
```

Most of these pronoun omissions and insertions, like the previous group, do not get self-corrected. That's because they are optional and there is no disconfirmation to conflict with the reader's construction.

There are some other omissions which look similar but do cause a change in meaning. These tend to be corrected more than the earlier examples:

```
                  Ø(3)                                        Ø(4-1c)
S51 215-6 I want YOU to save half your allowance for IT each week.

                              ' Ø(2c)
315-6 "Mr. Barnaby will see YOU if you come over right away."

                   Ø(9-6c)
402-3 he returned IT to his parents' room

609-10 After winding the wire around the bottom of the
                     Ø(4-3c)
     bulb, he taped IT in place.

                                        UP(2c)
S53                                     Ø(7-3c)
813 At the station Mr. Barnaby rushed US into the studio.

1101  Someone stuck some papers into Mr. Barnaby's limp
              Ø(2c)
1102 hand, and IT made me feel good to see him get control...
```

There are a few insertions like these omissions:

```
S53            YOU(1uc), HIM(1)
512 "let me see / now."

         I(1)
102 Then / don't think of it as baby sitting.
```

In each case in the above group the resultant structure makes some sense, but the readers tend to get some kind of disconfirmation and correct.

Another set of pronoun omission miscues produce syntactically unacceptable structures. They result from some kind of non-productive transformation: Here are examples from one of our texts.

S51 Ø(1) 228 HE thought happily.

Ø(1) 305 I knew IT was Freddie's fault.

Ø(1c) 410 Freddie told his parents about IT at breakfast.

Ø(1c) 416 YOU what? Mr. Miller asked angrily.

Ø(1c) 501 When Freddie told how HE had fixed the clock...

522 Freddie, trying to think, looked up at the small window
Ø(2-1c,1uc) 523 above the closet door. HE had an idea!

Most of these unacceptable miscues are isolated single miscues by one reader at one text point. Overt correction on them is mixed; some are corrected but some are not.

Pronoun for Pronoun Miscues

Table 12
Same Case Vs Total Pronoun Substitution Miscues

Story	S44	S51	S53	Total
Nominative				
Same	25	74	237	336
Total	35	80	251	366
Per Cent	71.4	92.5	94.4	91.8
Possessive				
Same	6	4	31	41
Total	16	19	55	90
Per Cent	37.5	21.1	56.4	45.6
Objective				
Same	5	6	36	47
Total	8	13	45	66
Per Cent	62.5	46.2	80.0	71.2
Total				
Same	36	84	304	424
Total	59	112	351	522
Per Cent	61.0	75.0	86.6	81.2

Table 12 shows the very strong tendency for miscues that involve pronoun for pronoun substitution to stay within the same case. That

means they involve changes in person, gender or number. The percentages increase, overall, from grade to grade. S44 shows 61% of pronoun for pronoun miscues are substitutions of same case pronouns. S51 shows 75% and S53 shows 86%. Over 80% of miscues in the three texts are same case substitutions.

All three texts show the highest rate of same case substitutions for nominative pronouns and the lowest for possessives. In fact, possessive pronouns show almost as high a rate of nominative substitutions as possessive, 44% for the three texts combined. Largely this is due to substitution of nominatives for possessives when the possessive is the first word in a sentence or clause.

The data from this study do not completely support the conclusion that this is a developmental phenomenon. The figures for possessive and objective pronouns show higher same case percentages for S44 than for S51. It is possible also that the high figures for S53 result from shifts between first and third person pronouns relating to the high rate of first person pronouns in that story.

In any case this high rate of staying within the same case means very strong grammatical constraints on all readers' inferences and predictions since such miscues maintain the syntactic structure even when they shift referent.

Same Case Pronoun Substitutions

Since most pronoun-pronoun substitutions stay within the same case it follows that miscues often involve shifts in person, gender and number within the same case. These shifts are quite broad in the readings of our three texts; almost every pronoun was substituted for every other one in the same case at least once by some reader. In general, however, the shifts in person, gender and number reflect the relevant features of the particular text and of particular text sequences.

In S53, with its first person narration, there are these shifts between first and third person:

HE for I (32 AT 22 instances); I for HE (25 at 21 instances)
HE for WE (47 at 7); WE for HE (18 at 15);IT for I (7 at 6);
I for IT (23 at 4); HIS for MY (5 at 4);HIM for ME (23 at 7);
ME for HIM (4 at 2)

First person-third person shifts are much less common in the other two texts:

S51-
WE for HE (5 at 2 instances); HE for WE (5 at 2); IT for I
(11 at 3); I for IT (3 at 3)

S44-
SHE for WE (2 at 1 instance)

Some phenomena, such as the HE/I shifts in the reading, occur at many instances of these pronouns in the three texts. But, as these figures also show, it is common for several readers to substitute the same pronoun at a particular instance. This demonstrates the transactive nature of pronoun reference. In these cases several readers have used the same text features to assign an alternate referent and then produced a pronoun appropriate to the referent. Figure 5 shows examples from the text of S53:

Figure 5 Examples of Pronoun Reference Shifts from S53

```
207 My baby brother Andrew made a few silly baby sounds
208 and began to cry.
                          HE(2,2c)
209      "Philosophical!" I shouted. "Go ahead and cry! Cry
                     I(17, 8c)        YOU(3)
210 all YOU want to! IT won't disturb ME!"
                                                    HIM(6)
317    Mr. Barnaby was a very busy man. As the lady led ME
                       HE(5)
318 toward HIS office, SHE said,"Mr.Barnaby is a very busy man."
                                        HE(1)
328  "I have an idea for a TV program," I said.

401     "Splendid! Splendid!" HE said, putting the tips of HIS
                                            HE(6)YOU(1)
402  fingers together  and nodding his head. WE could put it
403  on between nine and ten on Thursdays ...

527 Where can I see this baby brother of yours?"
                               HE(3,2c)
528 "Well, HE's home a lot," I said.
                                        HIM(5)
601  Mr. Barnaby frowned and glared at ME.
                                        HIS(2,2c)
611 Mr. Barnaby talked some more with MY folks.

712 When the day came at last, MY mother dressed Andrew
                     HE(2,1c) Ø(1)                  HE(17,4c)
713 in a new outfit.  I stood looking down at HIM when WE were
                       WE(2,1c)
714 almost ready to go. HE really was a pretty good kid; I
```

The first example above illustrates well the phenomena of assignment of pronoun reference . On line 207 and 208 the theme is strongly the baby, Andrew. Andrew is the subject of both clauses and a null deletion is used in the second clause; further the theme of the following two sentences with three imperative verbs is still the baby(represented by YOU in deep structure). Two subjects substitute HE for I on line 209 indicating that they have maintained the same theme requiring a shift to a third person pronoun. But both self-correct, perhaps because babies who cry and make "SILLY BABY SOUNDS" don't shout. On line 210, 17 of the 32 subjects substitute I for IT. In the dialogue carrier, I SHOUTED, the theme has shifted to the first person narrator and the readers expect that to continue.

The facts that I and IT are similar graphically and that I is a common way to start a sentence support and appear to confirm the readers' expectations. Furthermore there is no text antecedent noun which is coreferential with IT. Rather IT is coreferential with the crying of the baby which is not nominalized in the published text at all. All this is further complicated by the fact that this sequence occurs in dialogue, in which the pronouns relate to the alternating roles of characters in a speech act. That in turn is made more complex by the fact that pragmatically the author/narrator/big brother is not really holding a conversation with the 8 month old baby who can't talk yet.

Three of the subjects who substitute I also go on to substitute YOU for ME thus making the sentence plausible and contextually acceptable, both syntactically and semantically. None of these three subjects correct either miscue but 8 of the others correct their substitution of I for IT, showing the ability to shift the referent, not simply correct the word.

The subjects have shown, through their miscues, the complexities of assignment of reference to pronouns. The essential assumption of miscue analysis is that miscues are produced in the same way and using the same information as expected responses. So the 15 subjects who produced IT here as expected did that in the same way as those who miscued and produced I. Most subjects at most instances of every pronoun are successful in producing the expected response. Both the miscues and the absence of miscues demonstrate the constructive transactive nature of reading.

In line 317, 6 subjects produce HIM rather than ME. Five subjects do the same in 601. There are two other places in the story where 4 or 5 subjects substituted HIM for ME. In each case there are frequent uses of third person antecedents in the text and only an occasional first person reference to the narrator. The only multiple miscue shift in the opposite direction occurs in this sequence:

```
                                                          ME(3,1c)
1119-21 I saw that MY mother was smiling broadly. "It serves HIM
                                                  HE (11,2c)
right for calling a child of MINE typical," SHE said.
```

In the example above, there are a series of first person references preceding the third person HIM.

This tendency to maintain referent from prior thematic nouns and pronouns even when the reference shifts shows also in line 318 (HE/SHE), 402 (HE/WE), 528 (HE/I), 611 (HIS/MY), 713 (HE,I) and (HE/WE) and 714 (WE/HE).

In 2 cases above, the assignment of reference is complicated by the use of WE. In line 402, WE is the general WE that refers exophorically to the staff of the TV station. There is no prior use of such a reference. The WE in 713 vaguely refers to a collection of people including the narrator. Again there is no prior reference to this particular collection. This is not uncommon with plurals though it is complicated when the plural is first person.

First and Second Person Shifts

There is one substitution of YOU for WE in line 402 (above), as well as the YOU/ME substitutions discussed earlier. That sort of interchange of first and second person pronouns in dialogue might be expected since the same characters may be referred to by either pronoun in the same sequence, depending on roles in the speech act. Shifts between first and second person pronouns may represent shifts of reference. On the other hand they may represent maintaining reference and assigning dialogue or actions to different characters in the text. First/second person shifts, as expected, are more common in S53, the first person sixth grade text. They are also mostly single substitutions at particular instances.

Figure 6 Examples of First/Second Person Shifts in S53

```
                                                    YOUR(2)
507 "You may be right. Wouldn't want to imperil OUR good will.
          WE(2)
508 "And so YOU could just pick my little brother," I said.
                  YOU(2)
516 "Sure," I said. "WE could take some moving pictures
517 of HIM when HE's at HIS best."
                                                   YOU(3,2c)
518 "Nonsense, MY boy, " Mr. Barnaby said. "If WE do this,
519 IT will be a live show. Live, boy, live!"
```

Figure 6 shows some shifts that involve multiple miscues in a sequence which is part of the same extended conversation begun in 328 and 401 above. In the examples in Figure 6, particularly in 508 and 516, it turns out to make about as much sense to shift as to maintain the referent. With referents moving back and forth in this lengthy conversation it's not surprising that there are multiple subject shifts at these points.

Second and Third Person Shifts

Shifts in pronouns between second and third person are scattered except in a few instances. They are found in all three stories but are more frequent in S51 and S53.

Two examples come at points where dialogue has just ended:

```
S51                                                          YOU(2)
211-2  IT wasn't Andrew's fault that I had to stay home with HIM

S53                                          BROTHER
811 "I never thought HE was typical!" MY MOTHER said. There
                (2 HIS(1c), 2 YOUR, 1 OUR(c), 1 THE(c), HERE(c)
812 was pride in HER voice.
```

The second example is curious since it shows miscues involving three other possessive pronouns as well as THE and HERE. One subject substitutes BROTHER for MOTHER and then HIS for HER. All of the miscues but that HIS and the two YOUR substitutions are corrected.

Shifts in Gender

Shifts in gender, such as the HIS/HER example just above, are explicitly represented in third person masculine and feminine pronouns. In the three texts these occur:

Table 13
Shifts in Pronoun Gender

	S44		S51		S53	
	F	I	F	I	F	I
HE for SHE	1	1	10	7	17	4
SHE for HE	1	1	7	4		
HIS for HER					2	1
HER for HIS	1	1	2	2	1	1

Gender shifts are few in number except for HE/SHE. SHE/HE substitutions in S51 and S53. It's interesting that with proportionately more feminine pronouns in S44, there are few gender shifts.

Line 318 of S53, shown at the beginning of this section has 5 HE/SHE substitutions. Line 1121 of the same text, also above, shows 11 HE/SHE substitutions at a single text point. There are only 2 corrections for all 16 miscues. SHE only occurs 3 times in the whole text. The third occurrence has a single HE/SHE miscue and an IT substitution. The very fact that SHE occurs so seldom partly explains the shifts to HE which is much more predictable, if only because of its frequency in the text.

This example from S51 however demonstrates that expectations are also set up by the immediately preceding text:

511 When Freddie ran up from the cellar, HE heard HIS
512 sister's voice calling, "Freddie! Freddie!"
SHE(5)
513 "Where are YOU?" HE shouted.

In this sequence of dialogue, it's easy to lose who is saying what. By shifting from HE to SHE the readers have also put "WHERE ARE YOU?" into the sister's mouth:"Freddie! Freddie! Where are you?" SHE shouted.

There are a number of shifts involving IT as subject or object and other pronouns of the same case. We've already looked at IT/I, I/IT examples. There are examples among the three texts of IT substitutions also for WE, HE, SHE, YOU, ME; Substitutions for IT include WE, HE, SHE, YOU.

The only relatively numerous examples besides the I/It, IT/I substitutions are those involving HE and IT. IT for HE occurs 6 times in S51 and 13 in S53. HE for IT occurs 11 times in S51 and 7 in S53.

In the excerpt we discussed in detail early in this paper from S51 (p 17) a point occurred on line 611 where HE was substituted for IT 7 times. In that instance the readers expect the sentence subject to remain FREDDIE and the verb TOUCHED to have an animate subject.

In S53 these sequences relating to the baby occurs:
IT(3)
709 HE seemed to like the history lessons, too, but HIS favorite
710 was the dictionary.

810 "This baby is not typical."
IT(3) brother
811 "I never thought HE was typical!" my mother said.

In these cases the subjects don't shift referent. They shift the pronoun from masculine to neuter, something done often in referring to babies.

Line 811 shows a substitution of BROTHER for MOTHER. Multiple examples of this occur at several other points in S53:

brother(5,3c)
604 After he'd talked to my mother and father
brother(7,3c)
712 When the day came at last, my mother dressed Andrew

This BROTHER/MOTHER substitution demonstrates that shifts in reference can involve nouns as well as pronouns. The graphic similarity is certainly a factor here, but there are no substitutions of MOTHER for BROTHER at any point in the text. That supports the conclusion that the same inferential factors are involved in this shift of referent as in the pronoun shifts.

A similar phenomenon occurs with interchanges of BABY, BROTHER, and BOY, all terms with the same referent at various points in the reader's text:

baby(4,1c)
614 You know, this boy of yours is quite a businessman.

Number Shifts

There are shifts in number, also, among the examples above. These occur both within person(I/WE, MY/OUR, HE/THEY, HIM/THEM, HER/THEIR) and across persons (HE/WE, WE/IT, HIS/OUR). Most of these miscues in our three texts are scattered. The notable exceptions are the HE for WE (47 miscues at 7 instances) and WE for HE (18 at 15 instances) which occur in S53 and were cited above. That demonstrates again that the frequency of these miscues is text specific relating to the general characteristics of particular texts and the specific characteristics of specific text passages.

Correction

We've mentioned in previous discussions that rates of correction of pronoun miscues vary considerably depending on a number of textual and contextual factors. Some specific pronoun miscues are corrected because of particular characteristics of the surrounding context; others are corrected or not corrected disproportionately because of general characteristics of reader-text transactions involving such miscues. In this section we'll examine corrections of pronoun miscues looking for these general factors which are involved.

Table 14
PRONOUN CORRECTIONS IN THE THREE TEXTS*

Story	S44			S51			S53		
	C	N	%	C	N	%	C	N	%
Nominative	20	95	21	39	155	25	173	675	26
Possessive	14	47	30	23	91	25	85	289	29
Objective	6	18	33	24	81	30	56	198	29
Totals	40	160	25	86	327	26	314	1162	27
% for all miscues			20			21			21

*includes miscues in which pronouns are expected responses.
C=Corrections N=Number of Miscues %=Percent corrected

As Table 14 shows, about one fourth of all pronoun miscues in the three stories are corrected. This is notably higher than the overall correction rates for all miscues in the three stories, which is closer to 20%. This higher rate of correction may indicate a tendency to predict reference from prior context and correct from following context. In any case our subjects showed more correction in all three texts for pronoun miscues than general miscues. The effect is actually more sharply different than it seems because the percent for all miscues includes pronouns.

Tables 15, 16, and 17 show more detailed information on corrections for the three cases of pronouns: nominative, possessive, and objective. They also show corrections of miscues involving substitutions for or omissions of text pronouns and miscues involving substitutions by pronouns for other non-pronoun text words and insertions of pronouns in the text.

Table 15
CORRECTIONS OF MISCUES INVOLVING NOMINATIVE PRONOUNS

Story →	S44			S51			S53			Total		
	C*	N	%	C	N	%	C	N	%	C	N	%
For nominative pronouns by other pronouns												
Nominative	3	25	12	28	74	38	61	237	26	92	336	27
Possessive	4	10	40	1	5	20	1	9	11	6	24	25
Objective	0	0	0	0	1	0	0	1	0	0	2	0
Other	0	0	0	0	0	0	0	4	0	0	4	0
Pronoun Total	7	35	20	29	80	36	62	251	25	98	366	27
For nominative pronouns by Non-pronouns												
Contract.	0	16	0	0	8	0	12	54	22	12	78	15
Determiner	7	10	70	3	19	16	22	37	59	32	66	48
Conjunct.	0	5	0	0	21	0	1	19	5	1	45	2
Preposit.	1	2	50	0	8	0	1	5	20	2	15	13
Other	4	16	25	4	9	44	8	25	32	16	50	32
Omission	1	11	9	3	10	30	8	34	24	12	55	22
Non-P. Total	13	60	22	10	75	13	52	174	30	75	309	24
Combin. Total	20	95	21	39	155	25	114	425	27	173	675	26
Substitutions by Nominative Pronouns For Non-Pronouns												
Contract.	0	12	0	0	60	0	1	43	2	1	115	1
Determiner	4	10	40	1	11	9	9	19	47	14	40	35
Conjunct.	1	4	25	1	4	25	6	15	40	8	23	35
Preposit.	1	2	50	1	3	33	5	11	45	7	16	44
Other	4	17	0	2	5	40	14	28	50	20	50	40
Insertion	0	1	0	0	5	0	0	14	0	0	20	0
Non-P. Total	10	46	22	5	88	6	35	130	27	50	264	19

*C=Number successfully corrected Non-P=Non-pronoun

Table 16
Correction of Miscues Involving Possessive Pronouns

Story	S44			S51			S53			Total		
	C	N	%	C	N	%	C	N	%	C	N	%
For possessive pronouns by other pronouns												
Nominative	4	7	57	12	15	80	9	18	50	25	40	63
Possessive	2	6	33	0	4	0	5	31	16	7	41	17
Objective	0	2	0	0	0	0	2	5	40	2	7	29
Other	1	1	100	0	0	0	0	1	0	1	2	50
Pronoun total	7	16	44	12	19	63	16	55	29	35	90	39
For possessive pronouns by non-pronouns												
Contract.	0	0	0	0	2	0	1	1	100	1	3	33
Deictic	0	3	0	3	6	50	2	3	67	5	12	42
Determiner	5	18	28	5	42	12	23	61	38	33	121	27
Conjunct.	0	0	0	0	0	0	2	6	33	2	6	33
Preposit.	0	2	0	0	0	0	2	8	25	2	10	20
Other	4	6	17	1	7	14	2	8	25	4	21	19
Omission	1	2	50	2	15	13	0	9	0	3	26	12
Non-P. Total	7	31	23	11	72	15	32	96	33	50	199	25
Combin. Total	14	47	30	23	91	25	48	151	32	85	289	29
Substitutions by possessive pronouns for non-pronouns												
Contract.	0	0	0	0	2	0	0	4	0	0	6	0
Deictic	0	1	0	1	7	14	0	2	0	1	10	10
Determiner	0	7	0	0	17	0	2	56	4	2	80	3
Conjunc.	0	0	0	1	1	100	0	0	0	1	1	100
Preposit.	0	1	0	0	0	0	3	9	33	3	10	30
Other	3	7	43	0	0	0	11	24	46	14	31	45
Insertion	0	1	0	1	19	5	1	3	33	2	23	9
Non-P. Total	3	17	18	3	46	7	17	98	17	23	161	14

Table 17
Correction of Miscues Involving Objective Pronouns

Story	S44			S51			S53			Total		
	C	N	%	C	N	%	C	N	%	C	N	%
For objective pronouns by other pronouns												
Nominative	0	1	0	0	1	0	1	2	50	1	4	25
Possessive	0	1	0	4	5	80	2	7	29	6	13	46
Objective	1	5	20	2	6	33	7	36	19	10	47	21
Other	0	1	0	1	1	100	0	0	0	1	2	50
Pronoun Total	1	8	13	7	13	54	10	45	22	18	66	27
By objective pronouns by non-pronouns												
Contract.	0	0	0	0	0	0	0	1	0	0	1	0
Determiner	1	2	50	9	16	56	6	8	75	16	26	62
Conjunc.	1	1	100	1	1	100	0	0	0	2	2	100
Preposit	1	2	50	1	11	9	3	8	38	5	21	24
Other	1	1	100	1	3	33	0	6	0	2	10	20
Omission	1	4	25	5	37	14	7	31	23	13	72	18
Non-P Total	5	10	50	17	68	25	16	54	30	38	132	29
Combined Total	6	18	33	24	81	30	26	99	26	56	198	28
Substitutions by objective pronouns for non-pronouns												
Contract.	0	1	0	0	0	0	0	0	0	0	1	0
Determiner	1	3	33	0	2	0	2	2	100	3	7	43
Conjunct.	0	0	0	0	1	0	0	0	0	0	1	0
Preposit	0	1	0	0	2	0	2	2	100	2	5	40
Other	0	2	0	0	4	0	2	10	20	2	16	13
Insertion	0	0	0	0	0	0	1	7	14	1	7	14
Non-P Total	1	7	14	0	9	0	7	21	33	8	37	22

Substitutions of pronouns within the same case for each other show average or below average for pronoun correction. 27% of the nominative-nominative substitutions are corrected, 21% of the objective-objective substitutions are corrected and 17% of the possessive-possessive miscues are corrected. These rates are quite interesting since such substitutions maintain sentence syntax while shifting reference. The higher rate of correction for nominatives may indicated the readers greater concern for their thematic role in the sentences.

As we've said earlier pronouns substituted for other pronouns tend to stay within the same case. The major exception is the substitution of nominative pronouns for possessives (Table 15). There

are 40 such miscues in the three texts, almost matching the 41 possessives substituted for possessives. But 63% of these nominatives are corrected. Most of the substitutions occur in positions where the possessive is the first word in a sentence or clause. These appear to reflect readers prediction of nominative pronouns which are then disconfirmed by the following text. Here's an example:

0326 even Uncle Oscar couldn't keep Freddie from enjoying
he(4,3c)
0327 the moment when his parents discovered who had fixed
0328 the alarm.

Virtually all examples of this phenomenon involve HE/HIS, YOU/YOUR, or WHO/WHOSE. The prediction of a nominative pronoun is probably supported by the graphic similarity of the nominative and possessive forms(as compared to WE/OUR, SHE/HER, AND I/MY.

There are a modest number of possessive for nominative substitutions, but only 25% of those are corrected.

Some types of miscues produce notably few corrections. One such is the substitution of nominative pronouns for contractions discussed earlier. Only one of 115 such miscues was corrected. These miscues are virtually all substitutions of the HE/HE'S, I/I'M, YOU/YOU'RE type which could also be seen as omission of BE forms. As we suggested earlier they all involve particular language groups within our study. The almost total lack of correction strongly supports the view that these miscues are consistent with the dialect of English spoken by the readers who have no need to correct them.

There are some opposite types of miscues where contractions are substituted for the pronouns. In only one story, S53, are' there corrections, 22%. These mostly involve IT'S for IT and HE'S for HE. Some may involve an over-compensation for the readers' awareness of their tendency to omit BE forms in contractions.

Another phenomenon involving low correction percents is what appear to be substitution of conjunctions for nominative pronouns or vice-versa. As was explained above, these actually involve transformations in parallel clauses with the same subject. Only one of 45 conjunction for pronoun miscues was corrected. Seven of 23 pronoun for conjunction substitutions (30%) were corrected. While most of the conjunction for pronoun miscues involve AND, several of the pronoun for conjunction miscues involve AS and IF and these figure in more of the corrections.

Determiners interact with all three pronoun cases but show different patterns of correction. 48% of determiners substituted for nominatives are corrected. For objective pronouns 62% are corrected but for possessives the figure is 27%. These figures show that different phenomena are involved. When determiners are substituted

for nominative or objective pronouns the readers would expect a noun to follow to complete a noun phrase. When a noun does not follow the prediction is disconfirmed leading to self-correction. When determiners are substituted for possessives the noun phrase is left in tact and only the possible loss of more explicit reference would cue a correction.

Insertions of all three pronoun cases occur. There is little or no correction of such insertions. There are omissions of all three cases as well. Correction of all three cases is below average for pronoun miscues, with possessives having the lowest rate, 12%. A loss of a possessive may or may not result in a loss of cohesion or reference depending on the specific text sequence.

To sum up the insights into pronoun miscue correction, none of the figures are surprising. Correction is a somewhat complex phenomenon, as past miscue studies have shown. (Goodman and Goodman, 1978) In general, readers correct when they have made miscues which disrupt the comprehensibility of the text. Sometimes they will correct even if the miscues don't do that if there is obvious disconfirming information in the text or if they are highly cautious readers.

Some general phenomena stimulate a high rate of correction. Some account for an unusually low rate of correction. And specific contexts can explain most of the patterns that deviate from these trends. All this is consistent with what we know about corrections. They tend to occur at points where readers realize they are necessary to produce meaningful text.

Summary of Findings

The patterns we've found in examining the use of pronouns in three texts through the miscue patterns of readers strongly supported the transactional theory we've set forth at the beginning of this report.

The authors and editors of these basal reader stories have used pronouns following a rule of economy that requires that old information not be redundantly represented and that pronouns be used wherever possible in noun positions except where the resulting text would be ambiguous. About a third of the words in all three stories are nouns and about a third of those noun positions are filled by pronouns. Roughly 10% of the running words in the stories are pronouns. Possessive pronouns add two to three percent more. They comprise about one fourth of the noun modifiers in the texts.

Specific text factors strongly influence the choice and distribution of pronouns. One text, (S53, sixth grade) told in first person, has the highest percent of pronouns and the lowest percent of proper nouns. S44, our second grade text has a much higher proportion of feminine pronouns because it has more prominent female characters.

While about equal numbers of nouns occur in the three texts as subjects and objects, pronouns occur in subject positions three times as often as they do in object positions. That supports the concept that pronouns often appear when a particular noun remains thematic over a series of clauses. It does not seem to be distance from a coreferential noun but referential ambiguity which has the greatest influence over use of pronouns.

Though the texts examined were designated for second, fourth and sixth grades respectively, the proportions of pronouns and range of use were more alike than different in the three texts. Differences were functions more of cast of characters, person, and style than maturity of intended audience.

Only third person pronouns were likely to have specific co-referential nouns which either preceded or followed in the text. First and second person pronouns occurred most often in dialogue and their referents changed depending on the roles of characters in the speech act. IT and deictics like THIS and THAT often had institutional or exophoric referents. Certain uses of WE, ME, and YOU had similar institutional referents.

The readers' patterns of miscues showed them establishing pronoun referents in the personal texts they created as they read. Pronouns were read without miscues over 90% of the time by all three groups. Miscues on pronouns were less likely than on text words in

general on all three texts.

A number of key findings support the concept of dual texts with the reader's referents in the reader's text:

1. Many text pronouns show few or no miscues. Others show identical substitutions by several subjects indicating their shift to a different referent.

2. Pronouns are substituted for other text words in rough proportion to their occurrence in the text. The readers predict on the base of their experience with the text.

3. There is a strong tendency for substitutions for pronouns to be other pronouns, generally from the same grammatical case. This shows both the general tendency miscue studies have always shown for readers to maintain syntactic function and a tendency for the readers to anticipate where pronouns will be likely in noun positions.

4. Non-pronoun substitutions fall into a very small number of categories. Conspicuously absent are noun-pronoun exchanges. This confirms that readers seem to expect pronouns in certain text positions.

There are however substitutions of determiners for pronouns and vice-versa. These show a high rate of correction indicating that readers start to substitute noun phrases for pronouns but stop when they disconfirm their predictions. Since proper nouns do not require determiners, we can conclude that readers substitution of determiners shows anticipation of common noun phrases but not proper nouns.

5. Determiners are also frequently interchanged with possessives indicating maintenance of cohesive relationships while intensifying or weakening them since possessives have the anaphoric property of the determiners as well as coreference with a noun.

6. Patterns of miscues involving conjunctions and pronouns show the manipulation of the surface structure of the reader's text by the reader using different options than the author. A substitution of HE for AND in the second clause of a sentence replaces the null anaphora with a pronoun and changes the relationship of the two clauses slightly since they are still independent but no longer conjoined.

7. Shifts in person, gender, and number caused by pronoun for pronoun miscues tend to be strongly related to surrounding text. Often readers maintain the theme after the author has shifted it. This is strong evidence that every referencial decision requires readers to make inferences using available text information and their own schemata.

8. When pronouns are omitted or inserted there is usually little or no change in reference or cohesion that results.

9. Substitutions of nominative pronouns for possessives usually come at the beginning of a clause indicating the reader's tentative assignment of syntactic patterns starting with subject pronouns.

10. Corrections of pronoun miscues in all three texts are somewhat more likely than for all miscues on each text. They conform to the general finding of miscue analysis that corrections are most likely when the text the reader is constructing doesn't make sense. Some pronoun miscue patterns show unusually high rates of correction. Sixty-three percent of nominative pronouns substituted for possessives are corrected. On the other hand only one of 115 substitutions of pronouns for contractions is corrected. Other low correction types of miscues are omissions, insertions, and conjunction-pronoun substitutions.

Research on Pronouns in the Light of this Study.

Research on pronouns comes from a variety of disciplines and seeks to answer theoretical or practical questions relating to the functions of pronouns in texts, their influence on reader comprehension, how and when readers develop the ability to comprehend passages involving pronouns and some others.

Much of this research, particularly that coming from psychology and education have been experimental studies of short texts designed by the researcher to isolate and manipulate particular target constructions and control all other variables.

Kameenui and Carnine (1982) criticize such studies:

> While the atomistic analyses of isolated syntactic elements embedded in contrived passages provide important information about the impact of those structures on some form of comprehension, the generalizability of the findings is restricted in that passages were brief, contrived, narrative in nature, and required little memory. (p 558)

Because this study used whole texts which were not contrived to suit the purposes of the study or to control variables, it seems desirable to examine findings from these experimental studies in the light of our findings.

How Do Pronoun Structures Influence Reader Comprehension?

An early pronoun experiment (Bormuth, Carr, Manning, and Pearson, 1970) was part of an attempt to construct an instructional theory for comprehension based on a taxonomy of comprehension skills. The study included a taxonomy of anaphora consisting of 14 types including pronouns as well as pro-clauses, pro-verbs, pro-adverbs. In the experiment different forms of sentences were written that

incorporated all the structures. These were then embedded in four or five sentence paragraphs. After each paragraph the 4th grade subjects responded in writing to a WH question.

The percent of subjects responding correctly ranged from 65% to 87%. The lowest scores were on personal pronoun structures such as: "Joe left the room. HE ... " The authors conclude:

> By far the most startling result of this study was that large proportions of the students were unable to demonstrate a comprehension of the most basic syntactic structures by which information is signalled in language. (p354-5)

The authors also interpret the variability of difficulty of different anaphoric structures as evidence that these are hierarchical skills which led them to infer that direct instruction of specific structures will remedy the students' apparent lack of comprehension.

Lesgold (1974) challenges the findings of this study in a partial replication, arguing that it is unprofitable to hope to construct a hierarchy of syntactic comprehension skills unless semantic factors and information processing capacity are taken into account. Lesgold argues:

> No control procedure is available to insure that Bormuth's ranking arises only from syntactic differences and not from differences in passage wording or the amount of processing required to get from a syntactic parsing of a sentence to an underlying cognitive representation. (p 334)

Lesgold also finds fault with the multiple choice questioning in the Bormuth, et al study.

> Sometimes the answer to a question may be betrayed by semantic constraints. The paragraph may contain only one semantically possible answer to the question. For example, a WHO question after a paragraph with only one animate noun could be answered without knowledge of the target's syntactic structure. (p. 334)

In Lesgold's replication he controlled the number of semantically plausible answers. He also used oral instead of written responses, and the location of the target structure in the passage was counterbalanced.

His results sharply contrast with the study he challenged. His subjects are right on 91.7% of the personal pronouns. And his ranking of the different anaphoric structures is negatively correlated with the prior study. He concludes, "The use of difficulty ordering for

syntax without regard to semantics is not likely to lead to improved instruction in comprehension". (p 338)

Nevertheless, Richek (1976) designed a study on the basis of her conclusion that both studies show that children may have difficulty comprehending basic syntactic structures that are common in their school materials.

The goal of her study is, "to determine the difference in the comprehension of third grade subjects when they read sentences containing alternate anaphoric forms." Her hypothesis is that the more explicit the anaphor is the easier it will be to comprehend.

The study used intrasentential anaphora. The test sentences had two independent clauses joined by AND with the anaphoric forms always in the second clause. Three "paraphrase alternations" were used: 1. Repetition of the noun 2. Use of a pronoun 3. Null, omitted, form. The target sentences were embedded in three sentence paragraphs.

Richek finds what she is looking for: significant differences between her three alternations. Those with nouns are "comprehended" better than pronouns which are handled better than the nulls. She concludes that children at this age have incompletely developed understanding of syntax. She further asserts that this problem can be dealt with by "improving the linguistic abilities of children or manipulating reading materials so that they match children's skills."(p 148)

A study by Barnitz (1979) sought to pick up the need to understand the development of comprehension of pronoun structures in school age children. Barnitz starts with a view of the reading process involving construction by readers on their life experience and schemata. But underlying it also is the notion that school age children's knowledge of the syntactic structure may not be complete enough to comprehend school text books that use structures they aren't ready for.

Barnitz studied 2nd, 4th, and 6th graders. In his study he used only the pronoun IT as the targeted phoric form. He used as referents either noun (noun phrases) or clauses (or sentences). He also compared referent order where the coreferent was either anaphoric or cataphoric. A third variable he studied was referent distance which he judged by having some coreferents in the same sentence and others in different sentences. Each of his passages contained five sentences which contained two distractor referents as well as the correct one. Success was judged by correct answers to WH questions asked after each paragraph was read.

Barnitz finds that the subjects get more correct answers when

more correct responses when the referents precede (anaphoric) the pronoun than when they follow (cataphoric). But he finds no significant difference resulting from whether the coreferent is in the same sentence or another one. He also finds clear increases from grade to grade in the mean proportions correct on the various factors.

He concludes that syntactic structures do affect reading comprehension and that the syntactic aspects of anaphora contribute to readability. He concludes also that sixth graders are fairly well able to comprehend these pronoun structures where young children (second grade) have greater difficulty comprehending various aspects of text structure.

Chapman reports a series of two cloze studies to study the ability of children "to recognize semantic unity of a text by correctly identifying anaphoric and other cohesive ties." (Chapman, 1983 p.62)

In the first study 8 year old "fluent" and "non-fluent" readers were asked to read 7 cloze passages each of which had deletions of one set of pronouns, I, ME, MY, MINE for example. The finding from this study is that the fluent group did significantly better than the non-fluent group even when the pronouns to be filled in where available at the bottom of the stories. Chapman concludes from this, "children's ability to perceive cohesive ties during reading could well be a major factor in reading fluency and hence in reading development." (p64)

Chapman conducted a second study that added 11 and 14 year old subjects, "to see at what age children display the proficiency that the author had at first expected at a younger age." This time the number os stories was doubled as well. In this study average scores were about 30% for the 8 year olds, about 60% for the 11 year olds, and about 80% for the 14 year olds. Chapman reports being disappointed with these results:

> ..the results of the fourteen-year-olds were not much nearer the maximum score than those of the eleven-year-olds. After all the task was only to replace pronouns in simple story texts. (P.66)

He concludes, "the ability of children to replace pronouns is still developing in Upper School. It is, therefore, one small area of reading that needs attention in all schools..."
He adds, "...children's linguistic awareness of personal reference is still developing within the secondary school," (P.67).

At the beginning of this section we quoted Kameenui and Carnine (1982) in criticism of the use of short contrived texts. To remedy this they did a study which employed 250 word passages from existing

narrative and expository texts. They were also interested in readers' comprehension of syntactic structures but wanted to know as well how the presence of such structures influenced the readers' overall comprehension of the texts. They used questions interspersed during the reading as well as after the reading to measure comprehension.

They assigned 60 subjects randomly to four groups:

-Expository passages with pronoun constructions intact
-Expository passages with pronoun constructions replaced
-Narrative passages with pronoun constructions intact
-Narrative passages with pronoun constructions replaced

They find no significant difference on the narrative passage whether the pronoun constructions are intact or replaced. But they find a significant difference on the expository passages in favor of the replaced constructions in comprehension of pronoun specific referents.

They recommend that more practice for fourth graders in reading expository selections could help them. But they also suggest the simplification of pronoun structures in expository passages.

These recommendations come in spite of their general conclusion that:

> These findings suggest that in ecologically valid materials, or at least narrative passages for which general comprehension is good, the presence of pronoun constructions may not have as significant an effect on general comprehension questions as could be inferred from research using contrived passages. (p 575)

Kameenui and Carnine did some contriving of their own since they created alternate forms of the expository and narrative passages in which the pronoun structures were replaced with noun structures. They should not have been surprised that fourth grade children could answer very specific questions about expository passages better if nouns were present instead of pronouns since the most common strategy pupils employ for answering similar questions in school is to search the text for a statement which is a syntactic match for the question and find the noun that fills the WH slot.

Because ours was a naturalistic study, the data doesn't neatly line up in any one-to-one manner with the data from these other studies. We have comprehension measures but they don't include probes for exact antecedents of specific pronouns. Nevertheless it can be used to seriously question many of their conclusions. This is not to say their research has not been carefully conducted or that the statistics are not accurate. But, as Lesgold has pointed out as far as Bormuth, et al are concerned and as Kameenui and Carnine have said

of all the others, the results may be restricted to the narrow circumstances of the designs or erroneous because of misconceptions built into the experiments.

We would argue that it is the requirement of experimental research that the reality under scrutiny be reduced, decontextualized, and artificially controlled which leads to both the narrowness and the built-in misconceptions. For example let us examine Barnitz conclusion that there are developmental differences between his second, fourth, and sixth graders in their control of pronoun structures. Barnitz felt constrained to use the same passages with all his subjects so that he could control passage variables. His results show consistently better scores for the pupils in successive grades on each linguistic type. It would have been truly remarkable had he obtained any other results. Sixth graders, on the whole, are better readers than fourth graders who, on the whole, are better than second graders.

Similarly Chapman used the same passages for 8, 11, and 14 year old subjects. It is hard to support his conclusion that the better scores of the older subjects shows development or for that matter that the disappointing scores of the oldest group shows lack of development or lack of linguistic awareness. We suggest that if the stories had been of comparable difficulty for each age group the differences in performance would have been less than Chapman found.

In our study each grade group of subjects read a story designated for their own grade level. We found about the same proportion of pronouns in all three stories. And we found about the same range of response among our subjects in all three grades. Each group read a story appropriately difficult for them and there was no difference in their ability to handle any particular type of pronoun structures nor any notable influence on their ability to comprehend the texts that resulted from grade specific differences in response to pronoun structures. In fact, given the difference in length and over-all sophistication of the three texts the pronoun miscue patterns of the three grade groups looked remarkably similar.

Bormuth and his colleagues and Lesgold carefully constructed passages to see how pupils handled a taxonomy of anaphoric constructions including personal pronouns. Again it should come as no surprise that the subjects did better on some constructions than others. It must have been harder to make some of them fit into the controlled paragraph structure than others. Lesgold, in fact, demonstrated that by changing the controls on the paragraph structures the results changed dramatically and the hard constructions got easier and the easier ones got harder.

The conclusion of Bormuth,et al that they have demonstrated that "large proportions of the students were unable to demonstrate comprehension of the most basic syntactic structures" is totally

unwarranted. Lesgold calls attention in his study to the error in controlling syntactic factors and not attending to semantic factors. But he also uses short passages made to look very strange by the strong controls on their construction. Such passages, as Kameenui and Carnine point out, are very much unlike the connected discourse of real texts. Furthermore, in imposing their controls they violate some of the basic principles that writers and editors use in deciding when to use pronouns, namely the given-new principle, the rule of economy, and the avoidance of ambiguity.

Our data, though it deals only with pronouns and not with some of the other anaphoric structures studied by Bormuth et al, and Lesgold sharply contradicts their findings. Some examples of virtually every type of pronoun show few or no miscues. Where there are large numbers of identical miscues across subjects and where there are tendencies to change or lose reference there are always special features in the surrounding text which trigger the miscues showing the inferential nature of pronoun reference assignment.

Looking at what readers do with pronouns as they encounter them in a real text presents a far different pattern than these experimental studies. Our readers handled pronouns somewhat better than they did the rest of the texts, judged by their lower rate of miscues on pronouns and higher rates of corrections on them. Even in their miscues they showed a high degree of control of the pronoun structures since they rarely ever substituted pronouns for nouns or nouns for pronouns. The tendency to replace pronouns by pronouns of the same case also shows control over pronouns and the constraints of their use.

Barnitz attempted to look at the issue of distance between pronouns and coreferential nouns but his experimental design constraints were such that he could only represent this factor by varying whether such nouns were in the same sentence or a different one in the short passage. That meant that the pronoun and noun might actually be in adjacent clauses in different sentences and fewer words away than in the intrasentential condition. Our study of the pronoun distribution in the texts indicated that pronouns are much more likely to occur in subject than in object positions, that not distance but the ambiguity of reference is what guides reintroduction of nouns by writers, and that readers' miscues tend to continue reference to a formerly thematic noun.

Barnitz also chose to limit his study to uses of IT partly so that he could control referents more easily and partly so that he could include sentential referents. Our study, consistent with the theoretical literature on pronouns shows that IT is indeed complex, sometimes not pronominal at all but a dummy subject used to maintain usual English sentence order. Our subjects treated IT very differently as it occurred in different contexts and in its different uses. We can say then that Barnitz choice of IT for his study was

unfortunate in terms of the generalizability of the results.

What is of most concern to us is that these studies were done in the context of seeking information on how pronoun structures affect comprehension to use in improving instruction. Richek, as well as Kameenui and Carnine, discuss rewriting material to avoid pronouns or simplify their use. They and some of the others also suggest explicit instruction on anaphoric structures to make up for the deficiencies the researchers claim to have found. We find no justification for these recommendations. Our subjects did make some miscues involving pronouns that did affect comprehension. And insights from the patterns of miscues could help teachers to understand how pronouns are used by writers in building text cohesion and how readers use inference in establishing pronoun reference and building the readers' texts. But we see no evidence in the studies we have cited or in our own study of any developmental deficiency.

Furthermore, we're concerned that the type of instruction recommended will use artificial text exercises which have the same faults as those used in the research and that progress will be judged by performance on tests modeled after the research protocols.

Chapman concludes from his studies that personal pronoun structures and linguistic awareness of them are still developing at age 14. We suggest that had he included adult readers in his study they would not have done much better than his secondary school students. Would he then conclude that adults are also immmature in their development of cohesion?

Since many of these studies interpret performance on research tasks as equivalent to underlying linguistic competence it's important consider alternative explanations for the performance. Consider these complicating factors in the Chapman study:

1. He seems to have expected virtually perfect ability to put the pronouns in the cloze slots at least from the older subjects. In fact, all groups performed considerably better than the usual scores from typical cloze passages with random deletions.

2. Examination of the sample story he provides shows the fillers of the slots are far from obvious. Surely scores on specific pronoun deletions varied as considerably as our miscues varied on specific pronoun instances. That would mean that his pronouns were predictable in proportion to how ambiguous the surrounding text makes them and their referents.

3. Reading requires inference, particularly as it applies to assigning reference. Chapman's cloze task, like the others cited above complicates this inferencing as compared to reading whole natural texts:

a. His texts, even with lead-ins are short. Relative significance of miscues increases in short passages.

b. Since the pronouns are deleted, both the pronoun and the referent must be assigned by the readers

Given these complicating factors Chapman's results are consistent with ours. They show differences between more and less proficient reader in ability to draw inferences in some text situations. They do not show lack of control of cohesion, lack of linguistic development or lack of linguistic awareness among subjects of school ages.

How Do Readers/Listeners Determine Pronoun Reference?

Another related body of research has been concerned with the issue of how receptive language users do in fact assign reference for pronouns. This research is more concerned with the psycholinguistic processes and less with instructional implications.

Such a study was done by Grober, Beardsley, and Caramazza. (1978) The study used intrasentential anaphora of the type, GEORGE TELEPHONED WALTER BECAUSE HE WANTED SOME INFORMATION. They created several sub-types of such sentences that all had ambiguous pronouns but varied other sentence characteristics so that the reference was biased toward either the first noun phrase or the second. Their subjects were volunteer college students.

One biasing factor was in the use of certain causative verbs. And they did find:

> that subjects regularly make use of implicit causality relations marked by verbs in determining the selection of antecedents for ambiguous pronouns. (p 119)

They dub this the "implicit causality feature". They find that this causality transcends grammatical patterns functioning even in passive sentences. A related conclusion they draw is that:

> ... a pronoun in a second conjunct of a complex sentence is interpreted as coreferential with the NP that has the parallel grammatical function in the first conjunct. (p. 119)

They find also however that this factor they call the "parallel function hypothesis" does not always work when there is overriding semantic content in the sentence to influence assignment of reference.

About 70% of the pronoun reference assignments were to the grammatical subject of the first clause leading the authors to conclude:

> ...that the "parallel function hypothesis" is a basic perceptual strategy for comprehension of sentences which have a potentially ambiguous pronoun in the subject position of a subordinate clause.

It's to their credit that they so precisely delimit their findings to the rather narrow constraints of their protocol sentences. And indeed we've provided examples of miscues of our subjects that show what could be the influence of such a perceptual strategy. However we also report that about 75% of pronouns in our three texts are in subject positions and only 25% are in object positions. If such a division holds for oral and written texts in general, this would certainly lead to a strong tendency for listeners or readers to choose the subject NP as coreference for an ambiguous pronoun, and in that sense it's a little surprising that only 70% of the choices here were subject NPs.

This study offers another example of the dangers of artificial texts. That's compounded by creating deliberate ambiguity which has to be different than an inadvertent ambiguity created by an speaker/author or a shift in referent resulting from an alternative inference made by the reader.

Fredericksen (1981) also studied assignment of pronominal reference. His purpose was "to identify text characteristics that influence a reader's difficulty in resolving problems of pronominal reference" (p4) He looked at text variables including number of potential referents, mediated vs non-mediated intervening sentences, referent in subject position, foregrounding of incorrect referent and ambiguous referent selection. He was trying to establish a set of prioritizing rules that could account for the effect of different structures on assignment of pronoun referents.

Subjects were presented with a series of carefully constructed paragraphs that were shown on a video display one sentence at a time. That made it possible to measure reading time for each sentence because the subject controlled when the next sentence would appear. Certain pronouns were marked so that the researcher could probe for the reader's understanding.

He finds readers at all ages analyzing text features. He concludes that greater time for processing is required when a reference problem must be solved. He sees his subjects searching memory for noun phrases in the previous text and using semantic collocations to evaluate semantic distinctions. Reading time increases, for example when there are two potential referents rather than one. He also finds that noun phrases which are emphasized or

topicalized in subject position are easier for readers to assign as referents and that poorer readers depend more on this topicalization.

Fredericksen was testing two theories of how pronoun reference is assigned in his study. He calls one a reinstatement theory. In this view, any number of potential referents are analyzed at the time the pronoun is encountered. In the alternate, "pure pointer", theory the pronoun is dominated by a prior referent which is assigned to the pronoun and reassignment only takes place if other features in the sentence make the sentence ambiguous.

Fredericksen concludes:

> The results support a reinstatement theory in which a set of prior potential referents are reconsidered at the time the pronoun is encountered. Selection of a single "best" referent follows when intersentential semantic constraints will allow such a selection. (p. 53)

Fredericksen's research design had the merit of permitting him to vary the structure of his paragraphs to carefully control the relationship of pronouns and coreferential noun phrases. It enabled him to time the reading of each sentence by making only one available to the reader at a time with the reader controlling when the screen changed. But that builds in some other problems. Normal reading and normal pronoun referencing is distorted and disrupted. The carefully constructed paragraphs have very unusual or uncommon characteristics as compared to the usual text situation. The information available to the reader at any one time is not like what is usually available when pronouns are encountered in texts. That means that even his precise time measurements could be at least partly the result of the unusual characteristics of the text and the unusual conditions under which it is being read. Furthermore, in every carefully controlled condition he has limited the possible strategies the readers could use because of limiting the available information.

Consider Fredericksen's results in relation to that of a study which started with a different premise. Hirst, Levine and Henry (Miller, Bartlett and Hirst, 1982) conducted a series of experiments to test the belief that text with pronouns should be easier to comprehend than text with repeated noun phrases. They base this belief on Clark and Haviland's "given-new" integration model. Integration, in this view, is a three stage process whereby "Listeners compute what is given and what is new in an utterance, search memory for an antecedent of the given information, and then add new information to memory." (p3)

The experimenters believe that pronouns signal the reader that the information has already been given and thus facilitate integration.

In their first experiment they had paid volunteer subjects listen to six stories with an average length of 50 words and 6.7 clauses. Their subjects recalled the gist of pronominalized stories better than those which used repeated nouns.

A second experiment was conducted to test whether or not pronouns signal a listener or reader to begin integration. They reason that:

> A person encountering a repeated noun phrase should attempt to hold its verbatim representation in memory at least long enough to determine whether the noun phrase introduces a new character or refers back to an old one. This effort is not necessary for pronominalized clauses. They should lose their verbatim representation in memory more quickly than clauses with repeated noun phrases. (p50)

In this second experiment there were 30 stories with an average of 64.4 words and 6.2 idea units. The subjects were asked to listen and recall the last two idea units. The penultimate sentence contained either a pronoun or a noun phrase. All subjects recalled the gist of the target sentences but verbatim recall was better where the noun phrase was repeated than when a pronoun was used. They concluded that pronouns both facilitate and initiate integration.

Moving a step further, the third experiment tested the proposition that if pronouns facilitate integration their presence should decrease comprehension time. The same protocols were used as in the second experiment but this time the pronoun or noun phrase in the target sentence was always an unambiguous reference to a previously mentioned character. Like Fredericksen's study, subjects saw the text on a CRT one sentence at a time. They were asked to press a button when they understood a sentence and integrated it with what came before. The results met their expectations. Pronoun sentences were processed more quickly.

The closeness of their final design to Fredericksen's points up how such studies may be tailored to order to produce the desired results. We're not saying that either study was not objective or rigorously controlled. But in the one case Fredericksen believed that real time is involved in processing pronouns and that time varies depending on reference ambiguity. And indeed his study produced the predicted slowing down. The Hirst team believed that pronouns will take less time than equivalent noun phrases. And indeed their study produced the predicted speeding up. And Richek was able to produce a condition under which repeated noun phrases were harder to comprehend than pronouns, which is directly opposite from the Hirst team's conclusion:

> Pronouns unambiguously signal a listener or reader that the information contained in pronominalized clauses

> must be integrated with information introduced in the preceding text. Since repeated noun phrases do not share this property, text is easier to integrate when pronouns are used in preference to repeated noun phrases. (p.58)

The difference here may be the strong theoretical base on which the Hirst team constructed their experiments and the virtual lack of theory underlying the Richek study.

Though we could go back over the audio tapes of our subjects reading and time the processing of nouns and pronouns, it hardly seems profitable, considering that we chose not to control the texts and their reading in order to make such time comparisons meaningful. We can comment that pause patterns are easy to relate to problems over making sense of the text and that corrections result from apparent disconfirmation of prior predictions and decisions. But there are no easily discerned patterns of pauses at pronouns in our data that might correspond to Fredericksen's findings.

In general, we find our readers read pronouns like they expect them to be there; that is they seem always to have some sense of what is coming and to find pronouns, per se, neither surprising nor particularly troublesome. There are clearly cases where readers change or lose reference. This relates to their general concern for assigning syntactic structures, building text cohesion including coreference and in general making sense of the text. In balance it is clear that pronouns are facilitative of this sense making and that readers expect to find them in predictable places in texts. It doesn't surprise us, therefore, that readers may do unusual things when researchers present them with texts that do not follow predictable patterns.

How Readers Assign Reference: Our Transactional View

Here is our own answer, based on our theory and our data, of how readers assign reference to pronouns. As we have said we see reading as a transaction between reader and text. As reading proceeds a reader's text is constructed parallel to the published text. For the reader it is THE text. Referents for noun phrases in the published text are in the reader's text. When a noun phrase occurs the reader must assimilate or accomodate information assigned to it to the rest of the text and conversely information assigned to it will be on the basis of the prior text. If two or more noun phrases are coreferential this coreference must be established by the reader. That's part of the integration the Hirst team recognized.

Readers expect texts to be cohesive and that means that there will be coreferentiality. Even identical noun phrases are not always coreferential. But pronouns are always coreferential with something. Personal pronouns are often coreferential with antecedent nouns. That led to the common sense view that pronouns are simple substitutions

for antecedents which seems to be built into many research studies and a lot of instructional materials. But pronouns may be cataphoric having following coreferents or be exophoric referring to matters outside the text. First and second person pronouns usually have their referents in the roles within the speech act and thus referents change as roles changes within the same text. And referents of pronouns may be far more general than a particular noun phrase.

Pronouns then are text devices for indicating that a particular reference is to be maintained across the text, usually across clauses. So readers know that they must assign reference to pronouns. The same constraints for assigning meaning to pronouns operate for readers as for writers. Our study demonstrated that writers use pronouns as subjects far more commonly than they do as objects. That relates to the thematic or topicalized status other researchers have noted. Readers use this insight expecting pronouns to maintain reference to the continuing theme or topic. Sometimes they do so after the writer has changed reference. That demonstrates readers use of the same constraints as writers in assigning reference.

Our subjects act as if they know where pronouns will occur and know what their references will be as they encounter them. They do not appear to be choosing from alternatives as they encounter pronouns. Rather they are often so sure of the reference that their expectations override contradictory perceptual information. And it is not until subsequent text disconfirms that they reconsider and seek alternatives. Pronouns are treated by readers as no more ambiguous than any other filler of a noun position.

The major reason why readers seem to have already made their choices of potential coreferents before they encounter the pronouns is that the assignment of coreferentiality within the building of the text is not a linear word by word process. Readers are seeking sense, not references. So the assignment of referents is part of and incidental to the creation of a meaningful text. Pronoun occurrence facilitates this process because it limits the amount of redundant information readers must contend with and links the clauses and propositions of the text. Readers know what the coreferent for a pronoun is because they are building meaning and they can continue to build meaning because they know what the coreferent is.

This is not to say that readers do not sometimes have trouble establishing coreference and that they do not sometimes become quite deliberately preoccupied with the issue. But that happens when the process of building a meaningful text has been disrupted. When it happens it is not simply a matter of choosing from alternative antecedent noun phrases. A referent must be found which fits the syntactic and semantic constraints of the developing text. Figuring out which of several noun phrases in the surrounding text is coreferential may be a useful strategy. But, as our subjects showed, there are times when the use of this strategy has lead to the impasse

and an alternate strategy must be tried.

At the beginning of this report we indicated that writers do not normally deliberately create ambiguous texts. But since they can not think with their readers' heads, they will, at times, use pronouns which have ambiguous referents for their readers. Our readers do not usually appear to immediately recognize ambiguous reference. That would be indicated by considerable pausing and confusion at such pronoun occurrences. Rather our subjects seem to still act like they know the reference. That means that the ambiguity doesn't become obvious to them unless their assignment of reference doesn't work out. It also means that readers base their assignment of reference on their understanding of the text up to the point of the pronoun. Sometimes such a text ambiguity affects a number of readers resulting in several assigning the same alternate referent. Sometimes when the text is even more ambiguous there are a wide range of referents assigned by readers and at least some readers are unable to assign reference and recover meaning.

At other times miscue patterns indicate that particular readers may shift pronoun reference to fit their own schemata and text inferences even when the reference is quite unambiguous to most of the others.

It's easy to see how controlled texts used in experimental designs could create quite distorted views of how pronouns are processed by readers and how references are assigned by readers. That's not only because of the limitations we've discussed earlier but because of the basic relationship of pronouns and other aspects of cohesion to text. The meaning which any pronoun represents is not only represented at the single point in the text where the pronoun occurs. It can only be assigned at that point if it has been built by the reader into the reader's text. And that can only happen in unusual ways if the text is unusually short, unusually constrained or unusually structured.

Implications for Curriculum and Instruction

This study of pronouns and how readers respond to them in texts underscores, for us, the need to keep language whole, real and meaningful during instruction. We find readers at second, fourth, and sixth grade drawing on their very sophisticated control of English grammar, their store house of knowledge and their conceptual schemata in dealing with the texts in general and the pronouns in particular.

We could find nothing in our data to indicate that our younger subjects are not in control of any particular pronoun structures. These are very basic to the language and it would have been surprising to find seven and eight year olds unable to control any of the structures. Our subjects either speak low status dialects of

English or are speakers of English as a second language and they are average in reading for their populations, so this finding would surely be true of other native speakers of English their age. Nothing in our study would justify the recommendations of other researchers that school age children be given special instruction in the comprehension of pronoun structures or that instructional materials should simplify or avoid pronoun use.

Instructional materials and tests which isolate particular types of pronoun-reference structures should be avoided. They are most likely to produce the same kind of pupil performance that some of the experiments we discussed produced, creating an illusion of deficiency. It is no surprise that less proficient readers have more problems with pronoun structures than more proficient readers. It's part of being less proficient. Relating pronouns to their coreferents requires shifting focus from individual words to making sense of the text. Isolated practice on pronouns won't help. Reading real texts with naturally occurring pronouns will. It is especially important that such texts contain a full variety of pronoun uses so that pupils may develop an expectation for such diversity and strategies for dealing with it.

Teachers may find it useful to take passages from real texts which contain frequent, complex pronoun use and build them into strategy lessons. A strategy lesson is used to help students to examine and strengthen their own comprehending strategies in real text situations. (Goodman and Burke, 1980)

If any recommendation on instructional materials could be made on the basis of our study it is that what is most important for readers of any age or ability level is that they read interesting, cohesive, and well written materials. Writers will find it quite natural to make frequent use of pronouns in producing such texts and editors should be careful not to edit them out though they can be helpful to the writers in avoiding unnecessary and unintentional ambiguity. Ambiguous pronoun use is most likely to be a symptom of a lack of sense of audience on the part of the writer and what will improve the readability of the text is to bring the readers into it not leave the pronouns out of it.

We hope that the insights into the reader-text transactions that this study of pronoun miscues provides will be useful to teachers and administrators in monitoring what students do as they read and in planning instruction.

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- Graduate courses, seminars, minors and majors in educational linguistics.
- Conferences, workshops, symposia to provide dialogue among researchers, disseminators and practitioners.
- Publications including working papers, position papers and research reports.

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The program is interdisciplinary. It draws on anthropology, linguistics, sociology, sociolinguistics, psychology, neurology, psycholinguistics, physiology, and of course pedagogy, the study of education. Primarily the Program in Language and Literacy is a program in educational linguistics.

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